



Does global diversification destroy firm value?

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Abstract

Previous empirical studies have found that global diversification results in 18% shareholder loss. In this paper, we examine the sources behind the global diversification shareholder value loss in a contingent claims framework. This postulates that the risk-reduction effects of global diversification should decrease the value of shareholder equity (call option), whereas they should increase bondholder value. Consequently, near-all equity globally diversified firms should not experience a shareholder value loss. Consistent with the risk-reduction effects of global diversification, using cross-border acquisitions data we find three major results. First, shareholder value loss to global diversification is directly related to firms' leverage. Second, near-all equity firms do not trade at a discount. Third, the use of book value debt in estimating excess value produces a downward bias in globally diversified firms. Our findings confirm that increased foreign involvement increases bondholder value while it decreases shareholder value. This is consistent with the contingent claims view predicting that global diversification has a positive impact on bondholders' wealth while it has a negative influence on shareholder value (i.e., global diversification discount). Overall, our results reveal that global diversification does not destroy firm value.

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Introduction

In recent years, cross-border investment activity has increased dramatically.¹ Specifically, the number of US acquisitions of foreign companies increased from 532 (\$57 billion) in 1991 to 1034 (\$247 billion) in 1999.² This surge of foreign investment activity appears to be consistent with the global diversification literature (e.g., Caves, 1971; Buckley and Casson, 1976; Dunning, 1973) predicting a positive relation between firm value and foreign investment and several studies documenting benefits to global diversification (e.g., Errunza and Senbet, 1981, 1984; Fatemi, 1984; Doukas and Travlos, 1988; Doukas, 1995; Morck and Yeung, 1991, 2001; Doukas and Lang, 2003).

Recently, however, Denis *et al.* (2002), using the Berger and Ofek (1995) excess value (EV) measure, show that global diversification reduces shareholder value by 18%, while industrial diversification results in 20% shareholder loss.³ Surprisingly, they interpret the negative excess shareholder value to global diversification as firm value loss. Bodnar *et al.* (1999), using a similar excess valuation measure, find shareholder value to increase with global diversification, contradicting the evidence of Denis *et al.* (2002).⁴ It is well known that the valuation metric of Berger and Ofek (1995), used in

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these two global diversification papers, is likely to be downward biased in globally diversified firms, because it measures only shareholder value, not firm value.⁵ Therefore, without knowing how global diversification impacts on the wealth of other long-term claimholders (i.e., bondholders), it is difficult to make any inferences about its influence on firm value. Furthermore, several studies (Campa and Kedia, 2002; Graham *et al.*, 2002) present arguments against the findings of the industrial diversification discount literature that are equally valid for the global diversification discount studies.

One of the most intriguing aspects of the discount to global diversification is the suggestion that, to the extent that global diversification is under the control of firms themselves, firms might actually benefit by *contracting* their global operations. Or, at the very least, this finding casts doubt on the notion that foreign investments, because of higher growth opportunities abroad, are superior to domestic investments. The US Bureau of Economic Analysis (2004), however, reports that US companies abroad continue to realize strong earnings from their overseas subsidiaries. Their earnings have risen from \$52 billion in 1994 to more than \$200 billion in the second quarter of 2004. Recently, the *Wall Street Journal* (8 October 2004) highlighted the continuing gains of US multinationals from their overseas operations with a cover page article entitled 'Global Market is Good to US Firms'.

As the evidence about the global diversification discount is inconclusive, and plagued by limitations associated with the measurement of the discount, this paper takes a different approach. Specifically, we examine the sources behind the global diversification shareholder value loss (i.e., discount). To this date, this remains an unexplored issue. In contrast with previous studies, we focus on the risk effects of global diversification and its subsequent influence on shareholder and bondholder (firm) value. We argue that, if global diversification is beneficial to the firm because of its potential to enhance cash flow stability and/or reduce cash flow uncertainty (i.e., firm risk), the global diversification discount (i.e., negative excess shareholder value) should not be interpreted as a loss to global diversification simply because the negative excess value metric measures shareholder value loss, not firm value loss.⁶ As long as the cash flows from the parent and foreign subsidiary are not perfectly correlated, shareholders can suffer a

loss from global diversification due to the increase of coinsurance to bondholders. Global diversification could also lessen bondholders' concerns about potential losses arising from collateral and liquidation value increases. Hence collateral and coinsurance factors may play an important role in determining bondholder gains from global diversification.

This, however, raises the question of why shareholders would go along with the geographic diversification decision of the firm that potentially transfers value to bondholders. As corporate decisions are made by managers, the decision to globally diversify could be viewed as a good example of the agency relationship between managers and shareholders (Jensen and Meckling, 1976). Managers may engage in global diversification because they derive private benefits from managing a globally diversified firm (Jensen, 1986; Stulz, 1981). These private benefits may arise from several sources. They may come from prestige or better career prospects associated with running a globally diversified firm. Private benefits may stem from managers' higher pay, opportunities for skimming, or entrenchment as they become more valuable to a more complex firm. In addition, global diversification could be motivated by incentives to reduce managers' exposure to idiosyncratic risk (i.e., a scheme for managers to derive utility from reducing idiosyncratic risk that they face) (Amihud and Lev, 1981). Managers with higher equity ownership face higher idiosyncratic risk from incentives, and therefore they may pursue global diversification strategies to lower that risk. Hence global diversification driven by managerial self-interest has the potential to reduce shareholder value. However, the aim of this paper is not to discern the ways in which managerial motives work to reduce shareholder value in the context of the global diversification decision of the firm.

Accordingly, we hypothesize that if global diversification reduces firm risk, from a contingent claims perspective, it should give rise to a negative (positive) shareholder (bondholder) valuation. That is, viewing equity as a call option, its value should fall if global diversification lowers firm risk while bondholder value should rise. Therefore, consistent with the prediction of option pricing theory, US bidders buying foreign targets should experience a negative 'excess valuation'. Second, the contingent claims hypothesis predicts that the negative 'excess valuation' to global diversification should increase with debt increases. That is, the valuation effects to

shareholders should be inversely related to bidders' leverage because the value of the call option (equity) becomes more valuable (i.e., trades at a lower discount) with debt decreases. Therefore, the conclusion that global diversification harms firm value, relying exclusively on the excess valuation measure, is erroneous without evidence from the bondholders' perspective. These issues have motivated this paper and are addressed in this study.

Unlike previous studies, we examine the effects of global diversification on firm value from the perspective of shareholders and bondholders. To shed light on this important issue, we concentrate on a sample of US bidders that expand globally through foreign acquisitions. These transactions are appealing for several reasons:

- (1) foreign acquisitions permit us to observe the firm's changing diversification structure resulting from the act of adding new business divisions rather than the firm's subjective segment reporting;
- (2) divisions of multinational corporations emerge as a result of cross-border acquisitions; and
- (3) foreign acquisitions by MNCs and non-MNCs permit us to shed more light on the benefits of geographic diversification.

First, we analyze both the pre- and post-acquisition excess valuation of bidders, using a large sample of 612 firm-year cross-border acquisitions completed by US firms over the 1992–1997 period. In our analysis, we classify bidders into single- and multi-segment firms, with and without multinational involvement, engaged in diversifying and non-diversifying cross-border acquisitions.⁷ Controlling for both forms of diversification, our framework avoids the correlated omitted variables problem. In sharp contrast with other studies that depend on aggregate level data, we use transaction-specific data to study the effects of global diversification on firm value for a sample of US firms involved in cross-border acquisitions.⁸ Consistent with the prediction of the contingent claims hypothesis, we document that the global diversification discount is increasing with leverage, indicating that firms with diversified operations across markets are subject to lower risk. As leverage appears to be an important determinant in the global diversification discount, we also examine the excess valuation of bidders with less than 1% long-term debt (i.e., near all-equity) and find that bidders with or without prior foreign operations trade at a premium. We find similar results when we

use the less than 5% long-term debt as an alternative near all-equity cut-off criterion. Around the acquisition period, we find that increased foreign involvement is associated with shareholder value losses for all bidders, but not for the sample of unlevered bidders. These findings confirm that leverage has a negative impact on shareholder value, and provide supplemental evidence in support of the risk-reduction effects of global diversification.

Second, we examine the book value bias of debt, an indicator of bondholders' wealth, in cross-border bidders around the acquisition. For a subsample of 171 bidders, for which the market value of long-term debt information was available, the evidence shows that the book value bias of debt increases when bidders expand their operations across markets, indicating that the EV measure of firm value, which is based on book value of debt, systematically undervalues globally diversified bidders. These additional findings are consistent with the view that global diversification increases bondholder value and reduces shareholder value as a result of lowering firm risk.

This paper contributes to the literature in several ways. We provide an explanation for the global diversification shareholder value loss from the contingent claims perspective. We find that excess valuation, a market-based shareholder value measure, has an inverse relationship with debt. The lack of a global diversification discount and the downward bias in the excess valuation measure in near all-equity firms highlight the importance of taking into account the risk effects of global diversification. Second, our findings suggest that the negative excess valuation (i.e., global diversification discount) does not necessarily imply that global diversification harms firm value, as this is found only in bidders with high leverage. That is, the discount mirrors the risk-reduction effects of cross-border diversification manifested as bondholders' gain. This evidence is supportive of the view that global diversification does not destroy firm value.

The rest of the paper is organized as follows. The first section describes the sources of data and the sample selection. The next section presents the pre-acquisition excess valuation of cross-border bidders with and without multinational involvement. This is followed by an analysis of the change in the excess value of bidders around cross-border acquisitions. The subsequent section examines the impact of leverage on bidders shareholder value and bondholder value in response to increased foreign



involvement, and the final section concludes the paper.

Data sources, sample selection and industrial classification

Data sources and sample selection

Our sample consists of cross-border acquisitions made by US bidders between 1 January 1992 and 31 December 1997, as reported in the US Acquisitions Overseas roster of Securities Data Corporation's *Mergers and Acquisitions (M&A) Journal*. The rosters of the *M&A Journal* include all acquisitions of \$5 million value or higher. The name, the Standard Industrial Classification (SIC) code (at 2-digit level before 1993, at 4-digit level starting in 1993), the business definition of target firms or businesses, the name, and the business definition of bidder firms are reported in the rosters. They also report the value of acquisition, the method of payment, whether the target is divested or not, the completion day of the acquisition, and the advisors to both parties. Acquisitions associated with targets in non-manufacturing industries are excluded from the sample. Bidders involved in both domestic and cross-border acquisitions in the same calendar year are also excluded, and our initial sample covers 1503 cross-border acquisitions for the 1991–1997 period as reported in the *M&A Journal*.

Classification of bidders' international involvement and industrial diversification

Consistent with previous studies, we define a bidder as a multinational (MNC) firm when it has at least one foreign subsidiary and its ratio of foreign sales to total sales is more than 10%, and as a non-multinational (Non-MNC) firm when it does not have any foreign subsidiaries and its ratio of foreign sales to total sales is less than 10% in year $t-1$.⁹ Morck and Yeung (2001) measure global diversification based on the number of nations in which a firm has subsidiaries and the number of foreign subsidiaries. Their global diversification measure is more consistent with the one used in this study. The global diversification measure adopted by Denis *et al.* (2002) and Bodnar *et al.* (1999) is in sharp contrast with previous studies. Denis *et al.* (2002) classify a firm as globally diversified (MNC) if it reports any sales by foreign subsidiaries, whereas Bodnar *et al.* (1999) define a firm as being globally diversified (MNC) when it reports any revenue, income or asset data for a non-US segment. Apparently, both MNC classification

procedures tend to overstate the number of multinational firms in these studies.

In this paper, we use the Compustat Industry Segment File (CISF) to determine the industrial diversification and the business segments of bidders. SEC regulation S-K and FASB-SFAS No. 14 require firms to report segment information for fiscal years ending after 15 December 1977 for segments that represent 10% or more of consolidated sales. Our data set covers firms that engage in overseas mergers and acquisitions primarily before SFAS 131.¹⁰ The CISF reports net sales, operating profit (earnings before interest and taxes, EBIT), depreciation, assets, and capital expenditures on a segment level basis for all active Compustat firms other than utility subsidiaries. Compustat also assigns primary and secondary SIC codes to each business segment of the firm, as well as a main SIC code to the firm at the 4-digit level.¹¹

Following Servaes (1996), we define a line of business at the 2-digit SIC code level.¹² The rationale for using 2-digit SIC codes is that industries with the same 2-digit SIC does are closely related and require comparable management skills. Our procedure of identifying business segments is similar to those used by Lamont (1997) and Scharfstein (1998). We treat the primary and secondary SIC codes of business segments as being of equal weight: hence, we divide the sales, operating income, assets, capital expenditures, and depreciation of bidders' each reported segment into two components. We aggregate the resulting figures into distinct business segments based on their 2-digit SIC code to determine the sales, operating income, assets, capital expenditures, and depreciation of each distinct business segment defined at the 2-digit SIC code level. To ensure that our results are not driven by the choice of SIC code classification, we also classify the industrial structure of bidders and the type of acquisitions based on the 4-digit SIC codes.

Unlike Scharfstein (1998), who pools related segments into 'divisions' depending on his judgment of relatedness, our measure of relatedness for distinct business segments is based on segments sharing the same 2-digit SIC code. We define the 'core business' of the bidder by the 2-digit SIC code of the business segment that has the highest share of aggregated sales of the firm. To do so, we use information in the year before the acquisition. We count all remaining business segments of the bidder as 'non-core business' segments. To classify the nature of acquisition, we also use bidder's

segment information at the announcement year to identify its core and non-core business. This procedure yields similar results. Throughout the study, we report results based on the classification prior to year of the acquisition (year -1).

We define acquisitions as ‘unrelated’ (i.e., industrially diversifying) when the 2-digit SIC code of the target does not match the 2-digit SIC code of the bidder’s core business. We define acquisitions as ‘related’ (non-diversifying or focus increasing/maintaining) when the 2-digit SIC code of the target is identical to that of the bidder’s core business. To make sure that our results are not driven by SIC code classification, we also define

related and unrelated acquisitions based on the 4-digit SIC code classification.

Sample characteristics and summary statistics

Initially, we identify 1503 cross-border acquisition announcements in the *M&A Journal* that are also confirmed by the *Wall Street Journal*. Out of the 1503 acquisitions, we cannot find any information about bidders in Compustat for 510 acquisitions. This brings the sample size down to 993 acquisitions. Then, we eliminate 52 acquisitions made by bidders in non-manufacturing industries (Finance, Insurance and Real Estate (with 2-digit SIC codes from 60 to 67), and Services (with 2-digit SIC codes

Table 1 Sample description and summary statistics

	MNC bidders			NonMNC bidders		
	All acquisitions	Related acquisitions	Unrelated acquisitions	All acquisitions	Related acquisitions	Unrelated acquisitions
<i>(A) Number and frequency of cross-border acquisitions</i>						
Number and percentage Year $t=-1$						
All bidders	$n=355$ 58.01%	$n=221$ 36.11%	$n=134$ 21.90%	$n=257$ 41.99%	$n=160$ 26.14%	$n=97$ 15.85%
Multi-segment (multi)	$n=142$ 23.20%	$n=66$ 10.78%	$n=76$ 12.42%	$n=66$ 10.78%	$n=29$ 4.74%	$n=37$ 6.05%
Single-segment (single)	$n=213$ 34.80%	$n=155$ 25.33%	$n=58$ 9.48%	$n=191$ 31.21%	$n=131$ 21.41%	$n=60$ 9.80%
<i>(B) Summary statistics and sample characteristics</i>						
	Mean	Median	Minimum	Maximum		
Total sales (million \$)	4120	723	11.31	152,172		
Market value of equity (million \$)	4183	700	11.14	121,716		
Book value of total assets (million \$)	4783	610	10.77	243,283		
Foreign/total sales (%)	20.96	14.56	0.00	94.83		
Book value of debt (%)	39.15	37.87	0.00	94.64		
Number of segments	1.62	1.00	1.00	6.00		
Number of acquisitions/year	1.16	1.00	1.00	5.00		
Size of acquisition(s) (million \$)	185.76	54.00	5.00	4980		
Insider ownership (%)	15.09	7.62	0.00	87.07		
Institutional ownership (%)	46.94	50.69	0.00	87.26		
Tobin’s Q	1.391	1.071	0.12	8.29		

The table presents the number and frequency of 612 cross-border firm-year acquisition announcements reported in the *M&A Journal* and confirmed by the *Wall Street Journal* over the 1992–1997 period. Year $t=0$ is the year of acquisition. A bidder is classified as multinational (MNC) when it has at least one foreign subsidiary and a foreign sales to total sales ratio of 10% or higher in year $t=-1$, and as non-multinational (Non-MNC) otherwise. The sample excludes bidders that make cross-border and domestic acquisitions in the same calendar year. Acquisitions less than \$5 million are also excluded. Acquisitions in non-manufacturing industries are excluded from the sample as well. *Total sales* is defined as the gross sales of the bidder firm net of sales discounts in million \$. *Foreign/total sales* is the percentage of foreign sales of the bidder firm divided by net sales. *Market value of equity* is defined as the number of shares multiplied by the average stock price of the bidder firm in million \$. *Book value of total assets* is defined as current assets plus net property, plant, and equipment plus other non-current assets of the bidder firm in million \$. *Book value of debt* is percentage of total long-term debt divided by invested capital. *Number of segments* is the number of distinct lines of business the bidder firm is operating at the 2-digit SIC code level. *Number of acquisitions* is the total number of acquisitions completed by the bidder firm in the year of the acquisition. *Insider ownership* and *institutional ownership* are the average number of shares held by insiders and held by institutions divided by the average number of shares outstanding for the bidder firm respectively. *Tobin’s Q* is computed as market value of outstanding shares plus liquidation value of preferred stock plus net current assets plus long-term debt divided by total assets of the bidder. All values refer to the year prior to acquisition ($t=-1$).

Table 2 Cross-border bidders' pre-acquisition foreign sales to total sales

<i>FSTS year t=-1</i>	<i>MNC bidders</i>	<i>NonMNC bidders</i>
Multi-segment (multi)	35.10 [30.41]	2.13 [0.00]
Single-segment (single)	36.79 [31.95]	1.22 [0.00]

The table presents multinational and non-multinational bidders' pre-acquisition mean (median) foreign sales as percentage of total sales (FSTS). The sample consists of 612 cross-border firm-acquisitions over the 1992–1997 period. Year $t=0$ is the year of acquisition. A bidder is classified as multinational (MNC) when it has at least one foreign subsidiary and a foreign sales to total sales ratio of 10% or higher in year $t=-1$, and as non-multinational (Non-MNC) otherwise.

from 70 to 89)). We also drop another 136 acquisitions of firms that acquire several targets operating both within (related) and outside (unrelated) their core line of business in the same calendar year. In addition, 115 acquisitions are identified as multiple acquisitions of bidders and are consolidated into one firm-year acquisition. Furthermore, we cannot find information for the multinational involvement of 78 bidders in our sample. Therefore, our final cross-border sample includes 612 firm-year observations, spanning 40 2-digit SIC code industries.

Panel A of Table 1 presents the number and frequency (as a percentage of the overall sample) of 612 cross-border acquisitions.¹³ We classify 355 bidders as MNCs and 257 bidders as Non-MNCs. The majority of acquisitions is related in nature throughout the 1992–1997 period. More than 62% of cross-border acquisitions represent investments within the core business of the bidder, and about 38% of the cross-border investment activity is directed outside the core business of the bidder. More than 54% of multi-segment bidders' cross-border acquisitions are core unrelated. On the other hand, 71% of the cross-border acquisitions by single-segment bidders are core related.

The summary statistics and sample characteristics are reported in Panel B of Table 1. The mean (median) annual sales of bidders involved in cross-border acquisitions are \$4.120 billion (\$723 million). The average (median) market value of cross-border bidders is \$4.183 billion (\$700 million) and total assets are \$4.783 billion (\$610 million). These statistics suggest that cross-border bidders are large firms. Cross-border bidders' average (median) foreign sales to total sales ratio is 20.96%, indicating that they had a considerable degree of international involvement before the acquisition. The long-term debt to total capital ratio of bidders is 39.15%, suggesting that bidders are highly levered. The average (median) insider ownership of bidders is 15.09% and institutional ownership is 46.94%. The summary statistics also show that the average

(median) number of lines of business (number of business segments) of cross-border bidders is 1.62 and the number of acquisitions in a single year is 1.16. The average (median) size of cross-border target-year acquisitions is \$186 (\$54) million, indicating that most of the targets are not large firms.

Table 2 reports the foreign sales to total sales ratio of bidders in year -1 . As expected, the evidence confirms that MNC bidders have a considerably high degree of multinational involvement with a mean (median) foreign to total sales of more than 35% in comparison with Non-MNC bidders, which have very little or no multinational involvement at all.

Cross-border bidders' pre-acquisition excess performance: MNCs vs Non-MNCs

Univariate results: bidders' pre-acquisition excess performance measures: MNCs vs Non-MNCs

To assess the effects of global and industrial diversification on the performance of bidders following the acquisition, we estimate the excess shareholder value (EV) of bidders as in Berger and Ofek (1995) (i.e., EV is the natural logarithm of bidder's market value relative to its imputed value). We focus exclusively on cross-border bidders with and without foreign involvement in order to draw inferences about the effects of global and industrial diversification.

The imputed value is estimated by multiplying sales-based (asset-based) multiples, or weights, of the distinct business segments at the 2-digit SIC code level with the median market value obtained from domestic (Non-MNC) single-segment firms operating in the same 2-digit SIC industries. The sales-based (asset-based) multiples are ratios of annual segment sales (assets) for each distinct line of business at 2-digit SIC code level divided by total sales (assets) of the bidder in that year. Sales-based and asset-based computations yield very similar

results, and therefore, we report results based on sales-multiples computations.

Unlike previous studies, our imputed value measure controls for the size of the business segments of the bidder. The size of the stand-alone firms in this study is required to be within the 50–200% range of the size of the business segment of the bidder in that year. If there are fewer than five stand-alone firms in a year, we extend the size restriction to within 25 and 400% of the size of the segment's assets.¹⁴ Hence, we obtain bidder's imputed value as the weighted sum of median market value of size-matched domestic stand-alone firms operating in the same 2-digit SIC code industries with the distinct business segments of the bidder.¹⁵

The univariate excess valuation results, reported in Panel A of Table 3, indicate that globally diversified (MNC) bidders trade at a discount regardless of their industrial structure. The mean (median) discount is 24.78% for multi-segment MNC bidders and 27.70% for single-segment MNC bidders. Consistent with the industrial diversification discount literature, we find that multi-segment non-multinational bidders trade at a substantially higher discount (21.20%) than single-segment Non-MNC bidders (0.59%). The significant pre-

acquisition valuation difference between multinational and non-multinational bidders, in agreement with Denis *et al.* (2002), suggests that global diversification is associated with significantly larger shareholder value losses. Yet again in line with Denis *et al.* (2002), this difference is more pronounced between single-segment MNC and Non-MNC bidders, as multi-segment (industrially diversified) bidders are shown to suffer from a valuation discount irrespective of the level of their global diversification. Panel B reports similar results based on 4-digit SIC code classifications. We interpret the pre-acquisition global and industrial diversification discounts, measured by the excess shareholder value loss metric, to be consistent with the predictions of option pricing theory, suggesting that investment activities that reduce the underlying riskiness of firm cash flows tend to have an adverse effect on equity value (i.e., reduce shareholder value). Consequently, according to the contingent claims hypothesis, this is expected to be more pronounced in bidders with high leverage. We address the leverage effect on equity value in detail in a later section.

We find the pre-acquisition excess valuation evidence to be consistent with the notion that the discount to global and/or industrial diversification

Table 3 Cross-border bidders' pre-acquisition excess value: univariate and multivariate results

(A) Bidders' pre-acquisition excess value (EV, year $t=-1$) univariate results based on 2-digit SIC code classification

EV $t=-1$	MNC bidders	NonMNC bidders	Difference: MNC–Non-MNC
Multi-segment (multi)	–24.78*** [–30.02]*** ($n=142$)	–21.20*** [–13.03]*** ($n=66$)	–3.58 [–16.99]
Single-segment (single)	–27.70*** [–22.05]*** ($n=213$)	–0.59 [0.00] ($n=191$)	–27.11*** [–22.05]***
Multi-single (multi-single)	2.92 [–7.97]	–20.61** [–13.03]*	

(B) Bidders' pre-acquisition excess value (EV, year $t=-1$) univariate results based on 4-digit SIC code classification

EV $t=-1$	MNC bidders	NonMNC bidders	Difference: MNC–NonMNC
Multi-segment (multi)	–28.27*** [–30.28]*** ($n=238$)	–10.64** [–4.23]* ($n=129$)	–17.63** [–26.05]**
Single-segment (single)	–22.62*** [–16.80]** ($n=117$)	–1.15 [0.00] ($n=128$)	–21.47 *** [–16.80]***
Multi-single (multi-single)	–5.65 [–13.48]*	–9.49** [–4.23]*	

Table 3 *Continued*
(C) Correlations among variables

Correlation coefficients (significance)	EV	MNC dummy	FSTS (%)	EBIT	R&D/CAPEXP
EV	1.000				
MNC dummy	-0.144*** (0.001)	1.000			
FSTS Foreign to Total Sales (%)	-0.083* (0.062)	0.746*** (0.000)	1.000		
EBI	-0.034 (0.415)	0.079* (0.057)	0.051 (0.226)	1.000	
R&D/CAPEXP	0.056 (0.274)	-0.115** (0.025)	-0.080 (0.123)	-0.013 (0.793)	1.000

(D) Bidders' pre-acquisition excess value (EV, year $t=-1$) multivariate results based on 2-digit SIC code classification

Independent variables	All bidders ($n=612$)			All equity bidders Debt < 1% ($n=48$)			All equity bidders Debt < 5% ($n=88$)			Interaction variables ($n=612$)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Intercept	-7.89 (-0.557)	-7.20 (-0.527)	2.87 (0.194)	36.11 (1.213)	42.03 (1.449)	47.51 (1.572)	30.43 (2.545)**	22.86 (2.107)**	37.08 (2.799)**	-8.10 (-0.387)
MNC dummy										
FSTS (Foreign to total sales) (%)		-0.71 (-2.869)***			-0.95 (-0.665)			-0.29 (-0.669)		
Dummy if bidder is NonMNC multi-segment firm			-48.74 (-2.320)**			-			-47.13 (-0.874)	-37.08 (-1.742)*
Dummy if bidder is MNC single-segment firm			-47.15 (-3.759)***			-9.53 (-0.212)			-41.99 (-1.563)	-33.24 (-1.115)
Dummy if bidder is MNC multi-segment firm			-38.14 (-2.831)***			-24.95 (-1.445)			-20.83 (-0.419)	-42.58 (-1.972)**
DEBT										-1.19 (-3.428)***
NonMNC multi-seg * DEBT dummy										-1.28 (-3.255)***
MNC single-seg * DEBT dummy										-1.19 (-2.669)***
MNC multi-seg * DEBT dummy										-1.17 (-3.160)***
EBIT	0.00 (0.095)	0.00 (-0.044)	0.01 (0.210)	0.01 (0.056)	-0.01 (-0.063)	0.01 (0.032)	0.04 (0.259)	0.02 (0.122)	0.05 (0.271)	2.68 (5.363)***
R&D/CAPEXP	0.99 (0.516)	1.06 (0.557)	0.56 (0.293)	-2.49 (-0.438)	-3.89 (-0.706)	-3.70 (-0.657)	-0.01 (-0.069)	0.01 (0.024)	-0.08 (-0.333)	-0.87 (-0.800)
Calendar year dummies	Yes	Yes	Yes	No	No	No	No	No	No	Yes
R^2	0.071	0.065	0.094	0.011	0.031	0.087	0.023	0.005	0.049	0.191
Adj- R^2	0.044	0.037	0.060	-0.103	-0.086	-0.059	-0.009	-0.028	-0.039	0.156
F-value	2.581**	2.286**	2.709***	0.095	0.263	0.596	0.720	0.153	0.560	5.368***
P-value	0.014	0.029	0.005	0.962	0.851	0.669	0.593	0.928	0.730	0.000

(E) Bidders' pre-acquisition excess value (EV, year $t=-1$) multivariate results based on 4-digit SIC code classifications

Independent variables	All bidders (n=612) (3')	All equity bidders Debt < 1% (n=48) (6')	All equity bidders Debt < 5% (n=88) (9')	Interaction variables (n=612) (10')
Intercept	1.22 (0.144)	30.94 (1.404)	11.53 (1.066)	1.02 (0.239)
Dummy if bidder is NonMNC multi-segment firm	-15.84 (-1.819)*	-31.45 (-1.126)	-10.26 (-0.563)	-17.06 (-1.710)*
Dummy if bidder is MNC single-segment firm	-18.76 (-3.091)***	-43.95 (-1.104)	-31.84 (-0.906)	-27.77 (-1.932)*
Dummy if bidder is MNC multi-segment firm	-17.49 (-2.603)***	-45.38 (-1.370)	-20.55 (-0.634)	-30.05 (-2.302)**
DEBT				-0.23 (-2.463)**
NonMNC multi-seg * DEBT dummy				-0.26 (-2.013)**
MNC single-seg * DEBT dummy				-0.52 (-2.218)**
MNC multi-seg * DEBT dummy				-0.32 (-2.422)**
EBIT	-0.03 (-0.790)	0.12 (0.338)	0.06 (0.453)	0.80 (1.926)**
R&D/CAPEXP	0.04 (0.363)	-3.37 (-0.785)	-0.01 (-0.039)	0.23 (1.073)
Calendar year dummies	Yes	No	No	Yes
R ²	0.033	0.099	0.015	0.120
Adj-R ²	0.019	-0.023	-0.041	0.101
F-value	2.314**	0.815	0.261	6.147***
P-value	0.011	0.547	0.933	0.000

Panels A and B present multinational and non-multinational bidders' pre-acquisition mean [median] excess value based on 2-digit and 4-digit SIC code classifications. Panel C reports the Pearson correlation coefficients among variables. Panel D presents the regression results where the pre-acquisition excess value of bidders is the dependent variable. Excess value (EV) is computed using the methodology of Berger and Ofek (1995). A bidder is classified as multinational (MNC) when it has at least one foreign subsidiary and a foreign sales to total sales ratio of 10% or higher in year $t=-1$, and as non-multinational (Non-MNC) otherwise. DEBT is percentage of total long-term debt divided by invested capital. EBIT margin (EBIT) is defined as EBIT divided by firm sales. R&D/CAPEXP is defined as the ratio of bidder's R&D expenditures to capital expenditures. Year $t=0$ is the year of acquisition. Significance of mean (median) difference is computed by one-way ANOVA (non-parametric Wilcoxon rank-sum test). Reported statistical significances of correlation coefficients are based on 2-tail tests. t -values are reported in parenthesis. ***, **, and * denote statistical significance at 1, 5 and 10% levels, respectively.

is a reflection of lower firm risk arising from the greater diversity of the firm's operations achieved through industrial and global diversification. In the next section, we examine the pre-acquisition excess value of cross-border bidders in a multivariate framework.

Multivariate results: bidders' pre-acquisition excess valuation: MNCs vs Non-MNCs

We regress the excess value of bidders on variables that stand for their multinational involvement and industrial diversification as of year -1 . Before we report the regression results, it is important to examine whether the regressors exhibit high correlation with the foreign sales to total sales ratio and the diversification dummy. The correlation matrix, reported in Panel C, shows that the correlations for

most of these variables do not rise with increases in the foreign sales to total sales ratio and the diversification dummy. The high correlation between the foreign sales to total sales ratio and the MNC dummy suggests that both are suitable proxies for the multinational involvement of bidders. The cross-sectional regression results, reported in Panel D of Table 3, are mostly in conformity with the univariate pre-acquisition excess valuation findings while we control for other firm characteristics.¹⁶

In all regressions the dependent variable is the excess value of bidders in year -1 . As expected, the coefficient estimate of the multinational dummy (MNC dummy) in regression 1 is negative and significant at the 1% level, indicating that MNC bidders experience an average shareholder value



loss of 32.19% relative to Non-MNC bidders. Similarly, regression 2 shows that, when we use the foreign to total sales of bidders (FSTS) as an alternative measure of multinational involvement, global diversification harms shareholder value. A 1% increase in bidders' foreign to total sales ratio leads to 0.71% shareholder value loss. In regression 3, we control for both the industrial and the global diversification of bidders. As a result, the intercept in this regression captures the excess value of single-segment Non-MNC bidders. These findings consistently show that focused domestic bidders without foreign involvement do not trade at a discount. All the others bidders that are globally and/or industrially diversified trade at a substantial discount. These results are consistent with our univariate evidence and with Denis *et al.* (2002), who report that global diversification is associated with significant shareholder value losses.

However, we fail to find evidence in support of the global diversification discount for all equity bidders (i.e., bidders with less than 1% long-term debt). As shown in regressions 4 and 5, the coefficient estimates of the multinational dummy and the foreign to total sales variable, respectively, are statistically insignificant. As shown in regression 6, this result remains robust when we account for bidders' industrial structure characteristics. The next three regressions report similar results based on equity bidders with long-term debt less than 5%. Further investigation of the leverage effects on the shareholder loss to global diversification, as reported in the last regression, shows that the long-term debt variable (DEBT) and its interactive terms enter this regression with negative and statistically significant coefficients, while the coefficients of the three indicator variables lose their significance. The negative and statistically significant coefficients of the three interactive terms are remarkably consistent with the contingent claims hypothesis predicting an inverse relationship between leverage and equity value. The negative influence of leverage on equity stems from the risk-reduction effects of global diversification on firm cash flows. To put it differently, global diversification (i.e., a measure of idiosyncratic risk) lowers uncertainty about the future cash flows of the firm, which, in turn, reduces the option value of equity. That is, global diversification results in less unpriced risk, which lowers the option value of the equity (shareholders' claim) because it raises its exposure to priced risk. Hence, the interaction test, previously unexamined, provides strong evidence

in support of the risk-reduction hypothesis of global diversification. Finally, we examine the sensitivity of our results by re-estimating regressions 3, 6, 9 and 10 based on bidders' 4-digit SIC code classification. These results, as shown in Panel E of Table 3, are consistent with the findings reported in Panel D.

Robustness check: two-stage least-square regressions

The decision to diversify across markets is often based on firm-specific characteristics and industry conditions. Hence, the choice to diversify could be endogenous and self-selected (e.g., Campa and Kedia, 2002; Shaver, 1998). Consequently, a potential problem with our testing procedure so far is that the global diversification variable could be endogenous. To control for endogeneity in bidders' decision to diversify internationally we use a two-stage least-squares procedure. Specifically, we model bidders' global diversification decision as a function of firm and industry characteristics. Firm-specific variables include: natural logarithm of annual sales; percentage of total long-term debt standardized by invested capital; EBIT margin; Tobin's Q; R&D expenditures to total capital expenditures; institutional ownership; inside ownership; advertising expenditure scaled by total sales; and corporate governance index as in Gompers *et al.* (2003). We also use Industry Q as an industry-specific variable and calendar year dummies to capture changes in market conditions. The probit estimation of MNCDummy and OLS estimation of the FSTS variable for global diversifying firms are reported in Panel A of Table 4. Then, we use the predicted global diversification decision as an instrument in estimating the impact of global diversification on excess value.¹⁷ The two-stage least-square (2SLS) regression results are reported in Panel B of Table 4 along with the previously obtained OLS regression results for comparison. The 2SLS results provide additional evidence that global diversification has a negative association with bidders' excess value prior to the acquisition of foreign targets.

In sum, we interpret these results to suggest that the global diversification discount documented in the previous literature is a manifestation of shareholder value loss (bondholders value gain) arising from the risk-reduction effects of global diversification in levered bidders. In a subsequent section ('Bidders' leverage, excess value and book value bias') we address the bondholder valuation effects

by analyzing the book value bias of bidders' debt. For all equity bidders, we find no shareholder value loss to global diversification.

Change in cross-border bidders' excess performance around the acquisition

Having examined the pre-acquisition excess valuation of bidders, in this section we examine the change in the excess value of cross-border bidders in order to gain additional insights into the long-term effects of their foreign investment decisions. Specifically, we are interested in determining whether the change in the excess performance of the firm is linked to the act of diversification itself while we control for the global and industrial diversification of bidders and the nature of the cross-border investment activity (related or unrelated).

Change in bidders' global involvement: foreign to total sales ratio around the acquisition

First, we examine the effect of bidders' increased foreign involvement, as a result of cross-border acquisitions, on their foreign sales to total sales ratio around the acquisition. Table 5 reports the mean and median percentage change in the foreign to total sales from year -1 to $+1$. As expected, the evidence indicates that both MNC and Non-MNC bidders experience increases in foreign to total sales. Furthermore, foreign sales increases are more pronounced in bidders that did not have prior multinational involvement (Non-MNC bidders). Therefore, these results show that bidders' foreign involvement increases substantially subsequent to cross-border acquisitions.

Univariate results: change in bidders' excess valuation around the acquisition

Panel A of Table 6 reports the mean (median) change in bidders' excess value from year -1 to year $+1$. The statistically insignificant change in both single- and multi-segment MNC bidders' excess valuations, shown in the first column, indicates that bidders with prior foreign involvement continue to trade at a discount. Multi-segment Non-MNC bidders, as indicated in the second column, do not experience a statistically significant value loss, whereas single-segment non-multinational bidders realize a mean (median) value loss of -12.62% (-6.02%) around the acquisition, suggesting that overseas expansion by bidders without prior foreign involvement leads to significant shareholder value losses at the 5% level. We should

stress that this result captures the risk-reduction effects of global diversification for bidders without prior foreign or industrially diversified operations.

Cross-sectional results: change in bidders' excess valuation

To assess the effects of global and industrial diversification on cross-border bidders' performance, we also regress the change in the excess value of bidders from year -1 to $+1$ ($\Delta EV_{-1 \text{ to } +1}$) against the change in the foreign involvement of the cross-border bidders, the industrial and global diversification characteristics of the bidder, the nature of the investment activity (related or unrelated), whether the target is divested or not, and the state of economic development of the target's country, while we control for the market for corporate control with calendar year dummies. We classify the target's country as 'emerging' in accordance with the emerging market definition of IFC's Emerging Markets Database. According to this definition:

All stock markets in developing countries are considered to be 'emerging'. Developing countries are those classified by the World Bank as either low- or middle-income economies, regardless of their particular stage of development.

The regression results are reported in Panel B of Table 6. Regression 1 shows that the coefficient estimate of the percentage change in foreign to total sales is negative (-0.56) and statistically significant at the 1% level, indicating that a 10% increase in foreign to total sales ratio of bidders is coupled with a value loss of 5.6%, which is significant both statistically and economically. Similarly, the coefficient estimate of the percentage change in foreign to total sales ratio retains its sign and statistical significance in regression 2. Furthermore, focused Non-MNC bidders experience an average decline of 7.17% in their excess value, as evidenced by the intercept of this regression. The sum of the intercept with the coefficient estimate on each indicator variable, identifying bidders' prior global and industrial diversification, is statistically insignificant at conventional levels. Interestingly, the coefficient estimate on the proportion of targets in emerging countries is about 8% and statistically significant at the 10% level in both regressions, suggesting that bidders' expansion into emerging markets, generally known to be economically and politically fragile and uncertain environments, decreases shareholder value loss, consistent with the

Table 4 Robustness check: two-stage regressions

(A) Probit and OLS estimates for globally diversifying bidders

	Probit estimation of MNC dummy		OLS estimation of FSTS (%)	
	Coefficient	t-statistic	Coefficient	t-statistic
Intercept	0.2379	(1.901)*	5.3368	(0.928)
LN(SALES)	0.0281	(2.647)***	0.5082	(1.043)
DEBT	0.0006	(0.907)	0.0575	(1.775)*
Institutional ownership	0.0006	(0.631)	0.0214	(0.519)
Insider ownership	-0.0018	(-1.611)	-0.0619	(-1.195)
EBIT	0.0005	(1.909)*	0.0173	(1.440)
Tobin's Q	-0.0180	(-0.956)	-0.1411	(-0.163)
Industry Q	0.0587	(2.800)***	3.0190	(3.134)***
R&D/CAPEXP	-0.0017	(-2.259)**	-0.0553	(-1.565)
Advertising expenditures	0.6705	(1.000)	60.6549	(1.929)*
Governance index	0.0061	(0.789)	-0.2730	(-0.765)
Calendar year dummies	Yes		Yes	
	Likelihood ratio test statistic	6.311	R ²	0.063
	d.f.	(15)	Adj-R ²	0.042
	No. of observations	612	F-value	2.997***
	% MNC observations	58.01	P-value	0.000

(B) Bidders' pre-acquisition excess value (EV, year $t=-1$) multivariate results

Independent variables	OLS all bidders (n=612)	Two-stage regression all bidders (n=612)	OLS all bidders (n=612)	Two-stage regression all bidders (n=612)
Intercept	-7.89 (-0.557)	52.31 (2.097)**	-7.20 (-0.527)	52.76 (2.714)***
MNC dummy	-32.19 (-3.050)***	-97.34 (-3.458)***		
FSTS Foreign to total sales (%)			-0.71 (-2.869)***	-4.95 (-5.368)***
EBIT	0.00 (0.095)	0.01 (0.256)	0.00 (-0.044)	0.06 (1.168)
R&D/CAPEXP	0.99 (0.516)	-1.58 (-0.906)	1.06 (0.557)	0.21 (0.114)
Calendar year dummies	Yes	Yes	Yes	Yes
R ²	0.071	0.232	0.065	0.120
Adj-R ²	0.044	0.211	0.037	0.097
F-value	2.581**	11.452***	2.286**	5.193***
P-value	0.014	0.000	0.029	0.000

The dependent variable in the first regression of Panel A is the indicator variable that takes the value of 1 when the bidder is classified as a multinational (MNC) firm, and 0 otherwise. The dependent variable in the second regression of Panel A is the foreign to total sales ratio of bidders. Panel B presents the regression results where the pre-acquisition excess value of bidders is the dependent variable. A bidder is classified as MNC when it has at least one foreign subsidiary and a foreign sales to total sales ratio of 10% or higher in year $t=-1$, and as non-multinational (Non-MNC) otherwise. Excess value (EV) is computed using the methodology of Berger and Ofek (1995). LN(SALES) is the natural logarithm of annual sales. DEBT is percentage of total long-term debt scaled by invested capital. Institutional and insider ownership variables are defined as the percentage of outstanding shares owned by institutions and insiders, respectively. EBIT margin (EBIT) is defined as EBIT divided by firm sales. Tobin's Q is computed as market value of outstanding shares plus liquidation value of preferred stock plus net current assets plus long-term debt divided by total assets of the bidder firm. Industry Q is the theoretical imputed value of Tobin's Q for the bidder if it were decomposed into its business segments based on sales multiples of business segments at the 2-digit SIC level. R&D/CAPEXP is defined as the ratio of bidder's R&D expenditures to capital expenditures. Advertising expenditures are scaled by firm sales. Governance index is obtained from Gompers *et al.* (2003), and they define it as the sum of the number of provisions that restrict shareholder rights. Year $t=0$ is the year of acquisition. ***, **, and * denote statistical significance at the 1, 5 and 10 levels, respectively.

Table 5 Change in bidders' foreign sales to total sales

$\Delta FSTS -1$ to $+1$	MNC bidders	NonMNC bidders
Multi-segment (multi)	4.10*** [2.42]***	6.08*** [0.63]***
Single-segment (single)	5.28*** [4.50]***	12.43*** [4.26]***

The table presents the mean (median) percentage change in multinational and non-multinational bidders' foreign sales as percentage of total sales from year -1 to $+1$. Year 0 is the year of acquisition. A bidder is classified as multinational (MNC) when it has at least one foreign subsidiary and a foreign sales to total sales ratio of 10% or higher in year $t=-1$, and as non-multinational (Non-MNC) otherwise.

prediction of the contingent claims hypothesis. Furthermore, the coefficient of the managerial insider ownership variable enters regression 3 with a negative sign. The statistical significance of this variable supports the view that increased managerial ownership leads to investment decisions that reduce shareholder value while they amplify managers' private benefits. Alternatively, this result suggests that managers with higher equity ownership face higher idiosyncratic risk from incentives, and therefore diversification strategies are used to lower that risk.

For all equity bidders, as shown in regressions 4 and 5, the coefficient estimates of the foreign involvement variable, measured as the percentage change in foreign to total sales, are not statistically significant. This indicates that there is no shareholder value loss to global diversification in unlevered bidders.

Bidders' leverage, excess value and book value bias

Leverage and excess value of bidders

In this section we take a deeper look at the impact of leverage on bidders' pre-acquisition excess valuation. Panel A of Table 7 presents the cumulative distribution of leverage for the sample of cross-border bidders at various levels of long-term debt. Whereas only 6.1% of cross-border bidders have zero long-term debt, another 1.7% of bidders have leverage less than 1%. Furthermore, only 14.4% of bidders have leverage less than 5 and 17.5% of bidders have leverage less than 10%. Consistent with the long-term debt figures, reported in Panel B of Table 1, which illustrate that the mean (median) leverage is 39.15%, these findings provide additional evidence demonstrating that most bidders in our sample are considerably levered firms.

In accord with the prediction of the contingent claims hypothesis, we expect to observe the

negative excess valuation to be pronounced in bidders with high leverage. In contrast, bidders with long-term debt less than 1% (i.e., near-all equity bidders) are not expected to trade at a discount. Panel B of Table 7 reports the pre-acquisition excess value of multinational and non-multinational bidders at the 1% cut-off level of long-term debt. These findings, indeed, indicate that MNC and Non-MNC cross-border bidders with low leverage (long-term debt less than 1%) trade at a mean (median) premium of 24.10 and 37.38%, respectively, relative to a portfolio of stand-alone firms. This small-sample result provides no support for the view that global diversification destroys firm value, and therefore corroborates the basic insight behind the contingent claims explanation for the puzzling negative association between global diversification and shareholder value.

As expected, when we look at a fairly large sample, MNC and Non-MNC bidders with long-term debt greater than 1% experience significant shareholder value losses, confirming that the discount to global diversification is driven by firm leverage. Specifically, our results show that only levered bidders are associated with shareholder value losses. The mean (median) shareholder value losses are 27.89% for MNC and 12.85% for Non-MNC bidders respectively. As shown in Panel C of Table 7, the results remain qualitatively same when we use the 5% cut-off level of long-term debt. A similar pattern holds for both multi- and single-segment MNC and Non-MNC bidders. This leverage-neutral (i.e., for a given level of debt) result indicates that the shareholder value losses are considerably larger when bidders are globally diversified. From a contingent claims perspective, this finding suggests that global diversification lowers firm risk and shareholder value while it increases bondholder value. Furthermore, it is interesting to note that the bondholder benefits, reflected by the magnitude of shareholder value loss, are more pronounced in globally diversified firms.

Table 6 Change in bidders' excess value around the acquisition: univariate and multivariate results(A) *The change in bidders' excess value (ΔEV) from -1 to $+1$: univariate results*

ΔEV -1 to $+1$	MNC bidders	NonMNC bidders	Difference: MNC–NonMNC
Multi-segment (multi)	–0.39 [–0.63]	1.35 [–0.57]	–1.74 [–0.06]
Single-segment (single)	2.22 [3.73]	–12.64** [–6.02]**	14.86** [9.75]**
Multi-single [multi-single]	–2.61 [–4.36]	13.99* [5.45]	

(B) *The change in bidders' excess value (ΔEV) from -1 to $+1$: multivariate results*

Independent variables	All bidders			All equity bidders	All equity bidders
	(1)	(2)	(3)	Debt < 1% (n=48)	Debt < 5% (n=88)
Intercept	–0.66 (–0.198)	–7.17 (–1.655)*	–1.63 (–0.325)	–7.79 (–0.283)	–35.33 (–1.278)
$\Delta FSTS$ (foreign to total sales) -1 to $+1$	–0.56 (–3.317)***	–0.49 (–2.853)***	–0.48 (–2.811)***	0.07 (0.838)	–0.06 (–1.282)
Unrelated acquisition dummy	–5.02 (–1.214)	–6.10 (–1.433)	–6.00 (–1.412)	–2.96 (–0.859)	–18.45 (–1.110)
Dummy if bidder is a NonMNC multi-segment firm		12.52 (1.692)*	9.88 (1.323)		
Dummy if bidder is an MNC single-segment firm		9.66 (1.878)*	8.31 (1.610)		
Dummy if bidder is an MNC multi-segment firm		9.91 (1.718)*	6.97 (1.185)		
Insider ownership			–0.27 (–2.326)**		
Dummy if target is divested	1.62 (0.359)	1.21 (0.268)	1.34 (0.298)	–4.15 (–0.118)	–6.09 (–0.272)
Proportion of targets in emerging countries	8.62 (1.771)*	8.23 (1.691)*	7.29 (1.498)	–2.21 (–0.050)	3.19 (0.129)
Calendar year dummies	Yes	Yes	Yes	No	No
R ²	0.022	0.030	0.038	0.037	0.013
Adj-R ²	0.017	0.020	0.026	–0.076	0.004
F-value	2.275**	2.186**	2.603***	1.002	1.475
P-value	0.016	0.011	0.008	0.454	0.170

Panel A presents mean [median] percentage change in multinational and non-multinational cross-border bidders' excess value from year -1 to $+1$. Panel B reports regression results where the dependent variable is the change in cross-border bidders' excess value. Excess value (EV) is computed using the methodology of Berger and Ofek (1995). Year 0 is the year of acquisition. A bidder is classified as multinational (MNC) when it has at least one foreign subsidiary and a foreign sales to total sales ratio of 10% or higher in year $t=-1$, and as non-multinational (NonMNC) otherwise. An acquisition is defined as 'unrelated' when the 2 digit SIC code of the bidder's core business does not match with that of the target firm, and as 'related' otherwise. Target's country is defined in accordance with the emerging market definition of IFC's Emerging Markets Database: 'All stock markets in developing countries are considered to be emerging. Developing countries are those classified by the World Bank as either low- or middle-income economies regardless of their particular stage of development.' Significance of mean [median] difference is computed by one-way ANOVA [non-parametric Wilcoxon rank-sum test]. *t*-values are presented in parenthesis. ***, **, and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Book value bias and global diversification

The reason why bidders' leverage potentially influences the global diversification discount is that bondholders are also affected by global diversification. Hence the book value of debt should be a more downward-biased estimate of the market

value of debt for MNC than Non-MNC bidders owing to the risk-reducing effects of MNC bidders' globally diversified operations. In this section, we examine whether the book value of debt is a more downward-biased estimate of the market value of debt for globally diversified firms.¹⁸ We estimate

Table 7 Bidders' pre-acquisition leverage and excess value

<i>(A) Sample debt distribution</i>								
	<i>LT debt=0%</i>	<i>LT debt <1%</i>	<i>LT debt <5%</i>	<i>LT debt <10%</i>	<i>LT debt <20%</i>	<i>LT debt <50%</i>	<i>LT debt <75%</i>	<i>LT debt <100%</i>
Cumulative percentage	6.1%	7.8%	14.4%	17.5%	28.1%	67.2%	88.1%	100.0%

<i>(B) Excess value of cross-border bidders at 1% cut-off level of long-term debt (EV, t=-1)</i>						
<i>EV, year t=-1</i>	<i>All bidders</i>		<i>Multi-segment bidders</i>		<i>Single-segment bidders</i>	
	<i>MNC bidders</i>	<i>NonMNC bidders</i>	<i>MNC bidders</i>	<i>NonMNC bidders</i>	<i>MNC bidders</i>	<i>NonMNC bidders</i>
<i>LT debt <1%</i>	24.10**	37.38**	65.40	-	20.66**	37.38**
<i>LDebt (n=48)</i>	[33.92]**	[47.31]**	[65.40]	-	[27.04]**	[47.31]**
<i>LT debt >1%</i>	-27.89***	-12.85***	-25.49***	-19.62***	-29.72***	-9.10**
<i>HDebt (n=564)</i>	[-28.40]***	[-4.72]***	[-30.25]***	[-12.96]***	[-26.97]***	[-2.49]*
<i>Difference</i>	51.99**	50.23***	90.89**	-	50.38**	46.48***
<i>LDebt-HDebt</i>	[62.32]***	[52.03]***	[95.65]**	-	[54.01]**	[49.80]***

<i>(C) Excess value of cross-border bidders at 5% cut-off level of long-term debt (EV, t=-1)</i>						
<i>EV, year t=-1</i>	<i>All bidders</i>		<i>Multi-segment bidders</i>		<i>Single-segment bidders</i>	
	<i>MNC bidders</i>	<i>NonMNC bidders</i>	<i>MNC bidders</i>	<i>NonMNC bidders</i>	<i>MNC bidders</i>	<i>NonMNC bidders</i>
<i>LT debt <5%</i>	17.44**	23.16**	17.69**	32.03	17.36**	22.35**
<i>LDebt (n=88)</i>	[21.88]**	[33.76]**	[14.15]**	[32.03]	[21.88]**	[35.88]**
<i>LT debt >5%</i>	-13.73**	-6.75**	-16.56***	-10.10**	-11.31**	-5.08*
<i>HDebt (n=524)</i>	[-15.42]**	[-3.71]**	[-20.17]***	[-8.38]**	[-12.53]***	[-2.11]*
<i>Difference</i>	31.17**	29.91***	34.25***	42.13	28.67**	27.43**
<i>LDebt - HDebt</i>	[37.30]***	[37.47]***	[34.32]***	[40.41]	[34.31]***	[37.99]**

Panel A presents multinational and non-multinational bidders' pre-acquisition distribution of long-term debt. Panels B and C present the mean [median] excess value of cross-border bidders at the 1% and 5% cut-off levels of long-term debt respectively. A bidder is classified as multinational (MNC) when it has at least one foreign subsidiary and a foreign sales to total sales ratio of 10% or higher in year $t=-1$, and as non-multinational (Non-MNC) otherwise. Excess value (EV) is computed using the methodology of Berger and Ofek (1995). Year $t=0$ is the year of acquisition. Significance of mean [median] difference is computed by one-way ANOVA [non-parametric Wilcoxon rank-sum test]. ***, **, and * denote statistical significance at 1, 5 and 10% levels respectively.

the book value bias as the difference between the book value and the market value of long-term debt:¹⁹

$$BVBias = BVDebt - MVDebt \quad (1)$$

where BVBias is the book value bias of long-term debt, BVDebt is the book value, and MVDebt is the market value of long-term debt (\$ per \$1000 par value) of cross-border bidders. We use the January edition of Standard and Poor's annual Corporate Bond Records to collect the year-end market value of long-term debt data for cross-border bidders. We manage to obtain the year-end weighted average price of each bond issue for only 122 MNC and 49 Non-MNC cross-border bidders that have long-term debt greater than 1%.²⁰

In Panel A of Table 8, we report the book value bias of MNC and Non-MNC cross-border bidders that have long-term debt greater than 1% as of year -1 . All cross-border bidders' long-term debt, irrespective of their prior global and industrial diversification, trade above book value. Furthermore, the long-term bonds of Non-MNC bidders seem to trade at a lower average premium when compared with the long-term bonds of MNC bidders with similar industrial diversification status. Specifically, the bonds of multi-segment Non-MNC bidders trade at a lower premium (\$41.46) than the bonds of multi-segment MNC bidders (\$49.27). Similarly, the bonds of single-segment Non-MNC bidders trade at a lower premium (\$19.75) than the bonds of single-segment MNC bidders (\$30.41).

Table 8 Book value bias and foreign involvement of bidders

<i>(A) Pre-acquisition book value bias of cross-border bidders (\$ per \$1000 par value)</i>			
	<i>MNC bidders</i>	<i>NonMNC bidders</i>	<i>Difference: MNC–NonMNC</i>
Multi-segment (multi)	–49.47 [–50.40]	–41.46 [–36.25]	–8.01 [–14.15]
Single-segment (single)	–30.41 [–39.40]	–19.75 [–32.55]	–10.66 [–6.85]
<i>(B) Change in book value bias of bidders from year –1 to +1 (\$ per \$1,000 par value)</i>			
	<i>MNC bidders</i>	<i>NonMNC bidders</i>	<i>Difference: MNC–NonMNC</i>
Multi-segment (multi)	–12.67 [3.40]	–0.86 [–0.20]	–11.81 [3.60]
Single-segment (single)	–21.40 [–30.35]	–27.63 [–26.35]	6.23 [–4.00]

Panel A reports pre-acquisition book value bias of 171 cross-border bidders for which we could find market value of long-term debt. Panel B reports the change in the book value bias of cross-border bidders from year –1 to year +1. Book value bias is defined as the book value of cross-border bidders' long-term debt minus the market value of long-term debt (\$ per \$1,000 par value). A bidder is classified as multinational (MNC) when it has at least one foreign subsidiary and a foreign sales to total sales ratio of 10% or higher in year $t=-1$, and as non-multinational (Non-MNC) otherwise. Out of 122 MNC cross-border bidders, 76 are multi-segment firms and the remaining 46 are single-segment firms. Out of 49 NonMNC cross-border bidders, 27 are multi-segment firms and the remaining 22 are single-segment firms. Significance of mean (median) difference is computed by one-way ANOVA (non-parametric Wilcoxon rank-sum test). t -values are presented in parenthesis. ***, **, and * denote statistical significance at the 1, 5 and 10% levels respectively.

Table 9 Change in book value bias and excess value of bidders around the cross-border acquisition

<i>Independent variables</i>	<i>Δ Book bias –1 to +1 (\$ per \$1,000 par value)</i>	<i>Δ Excess value (% ΔEV –1 to +1)</i>
Intercept	–15.16 (–4.316)***	–1.27 (–0.267)
ΔFSTS (foreign to total sales) –1 to +1	–2.67 (–1.996)**	–0.33 (–1.801)*
Dummy if bidder is a NonMNC Multi-segment firm	7.08 (1.304)	5.64 (0.765)
Dummy if bidder is an MNC Single-segment firm	–7.96 (–0.199)	7.94 (1.462)
Dummy if bidder is an MNC Multi-segment firm	20.53 (0.476)	4.93 (0.842)
Insider ownership	0.63 (0.694)	–0.21 (–1.708)*
<i>Calendar year dummies</i>	<i>Yes</i>	<i>Yes</i>
R^2	0.012	0.017
Adj- R^2	0.003	0.009
F -value	1.851	1.836
P -value	0.106	0.105

The table presents the regression results, where the dependent variable is the change in the book value bias and the excess value of the cross-border bidders from year –1 to +1. Book value bias is defined as the book value of cross-border bidders' long-term debt minus the market value of long-term debt (\$ per \$1,000 par value). Excess value (EV) is computed using the methodology of Berger and Ofek (1995). A bidder is classified as multinational (MNC) when it has at least one foreign subsidiary and a foreign sales to total sales ratio of 10% or higher in year $t=-1$, and as non-multinational (NonMNC) otherwise. Out of 122 MNC cross-border bidders, 76 are multi-segment firms and the remaining 46 are single-segment firms. Out of 49 Non-MNC cross-border bidders, 27 are multi-segment firms and the remaining 22 are single-segment firms. t -values are reported in parenthesis. ***, **, and * denote statistical significance at the 1, 5 and 10% levels, respectively.

In Panel B of Table 8, we report the change in the book value bias of cross-border bidders from year –1 to +1. Whereas multi-segment bidders, irrespective of their prior MNC involvement, do not seem to exhibit considerable changes in their book value bias, single-segment bidders experience extensive declines in their book value bias. This

suggests that the bondholders' wealth increase is more pronounced in single-segment bidders around cross-border acquisitions. In particular, we find that the wealth of bondholders in Non-MNC single-segment bidders increases by an average of \$27.63 per \$1000 book value bond from year –1 to +1. The evidence is consistent with the contingent



claims view that global diversification has a positive impact on bondholders' wealth while it has a negative influence on shareholder value (i.e., global diversification discount). It is interesting to note that the book value bias is more pronounced in single-segment Non-MNCs. This is consistent with our earlier finding that these bidders experience a greater shareholder value loss than other bidders.

We also examine the relation between the change in the book value bias and bidders' foreign involvement increase from year -1 to $+1$. We regress the change in the book value bias against the change in bidders' foreign involvement, their industrial and global diversification characteristics, while we control for the change in the corporate bond market yields with calendar year dummies. We also regress the change in excess value of bidders from year -1 to $+1$ on the same set of variables. These results are reported in Table 9. In the first regression, the coefficient estimate of the change in the foreign involvement variable ($\Delta FSTS$) is -2.67 and statistically significant at the 5% level. Therefore, increases in foreign involvement, as a result of foreign acquisitions, lead to bondholder value increases (i.e., increases in book value bias). Overall, these results reveal that book value bias, an indicator of bondholders' wealth, increases around the time of bidders' global expansion, and that a 1% increase in foreign involvement translates into an increase of \$2.67 per \$1000 of bondholders' wealth. This is equal to 0.27% increase in bondholder value for 1% increase in foreign sales to total sales.

Finally, the relation between bidders' foreign involvement increases and the change in excess value around the acquisition is -0.33 and significant at the 10% level, as the second regression shows, indicating that shareholder value declines (bondholder value increases) in response to the risk-reduction effects of global diversification. This shareholder value loss (-0.33%) is approximately equal to the bondholder value gain (0.27%) for 1% increase in foreign to total sales. The coefficient estimate of the managerial ownership variable is -0.21 and significant at the 10% level. This suggests that increased managerial ownership favors diversification strategies that increase managers' private benefits while they reduce shareholder value. Once again, this is consistent with the prediction of the contingent claims hypothesis.

Conclusion

The shareholder value loss (i.e., negative excess valuation), recently reported by Denis *et al.* (2002)

in analyzing the effects of global diversification, has been interpreted as the discount to global diversification. This interpretation has led to the conclusion that global diversification harms firm value because its costs outweigh its benefits. Unlike previous studies, we examine the shareholder value loss to global diversification from a contingent claims perspective. We argue that when shareholder equity is viewed as a call option on the value of the firm, its value decreases (increases) in those states when the value of debt increases (decreases). Therefore, we hypothesize that the risk-reduction effects of global diversification should decrease the value of the call option (shareholder equity value) while they should increase bondholder value. Moreover, the shareholder value loss to global diversification should be a function of firm's leverage, and therefore all equity firms should not experience a shareholder value loss.

In this paper, we examine the impact of global diversification on the pre- and post-acquisition excess value of single- and multi-segment firms, with and without multinational involvement, engaged in diversifying and non-diversifying cross-border acquisitions, by employing a sample of 612 firm-year cross-border acquisitions completed by US firms over the period 1992–1997. Consistent with the risk-reduction effects of global diversification, we find that bidders with prior global operations trade at a discount relative to a portfolio of comparable stand-alone firms, indicating that these firms are subject to lower risk as a result of having diversified operations across markets. We find a similar pattern for the post-acquisition period. Our results also show that the shareholder value loss before and after a foreign acquisition is a function of bidders' leverage. Furthermore, we find that all equity bidders do not trade at a discount. These results indicate that only bidders that are considerably levered trade at a discount. Finally, we find that the use of book value debt in estimating excess value causes a downward bias in globally diversified firms. Our findings confirm that increased foreign involvement increases bondholder value while it decreases shareholder value. This is consistent with the contingent claims view predicting that global diversification has a positive impact on bondholders' wealth while it has a negative influence on shareholder value (i.e., global diversification discount). Overall, our results indicate that global diversification does not destroy firm value.



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Notes

¹The ratio of world FDI inflows to global gross capital formation is 14% in 1999 compared with 2% in 1980. Similarly, the ratio of world FDI stock to world GDP increased from 5 to 16% over the same period. (See *World Investment Report, Cross-border Mergers and Acquisitions and Development*, 2000, United Nations Conference on Trade and Development, United Nations Publications.) During the 1991–1994 period, foreign investment by US multinational companies grew at 12.7% per year. In 1995, foreign investment reached an unprecedented \$315 billion (see *Financial Times*, 25 September 1996).

²See the *Mergers and Acquisitions Annual Almanac* (1992–2000). See also Campa and Hernando (2004) for European M&As.

³Although a few other studies address the effects of global diversification (Christophe, 1997; Click and Harrison, 2000; Eckbo and Thorburn, 2000; Moeller and Schlingemann, 2005), they do not examine the sources of the global diversification discount.

⁴The premium to geographic diversification, recorded by Bodnar *et al.* (1999), might be attributed to the prominent role of unlevered firms in their sample.

⁵Mansi and Reeb (2002) question the findings of the industrial diversification discount studies by showing that the measure of excess value, used in most previous papers, creates a downward bias in a sample of industrially diversified firms on the grounds that it captures only shareholder value, not firm value.

⁶See Mansi and Reeb (2002) for the argument they make for industrially diversified firms and the bias associated with the Berger and Ofek (1995) measure of excess value used in previous studies. Lamont and Polk (2001), however, show that the industrial diversification discount manifests itself in both expected returns and expected cash flows.

⁷As is the case with industrial diversification, the global diversification losses can be attributed to the weak incentives of geographic division managers to maximize firm value in conglomerates.

⁸See Lang and Stulz (1994) for the advantages of using firm-specific data. Graham *et al.* (2002) also argue that firms' acquisition activity is the natural setting to study the issue of diversification.

⁹See Doukas and Travlos (1988), Jorion (1990), Morck and Yeung (1991, 2001), and Doukas *et al.* (1999), among others.

¹⁰Since June 1997, SFAS-131 has required the primary breakdown used by management in defining conglomerate business segments so that the management should report segment information according to how the firm internally organizes business activity for resource allocation and performance assessment. Our results are not sensitive to these reporting changes.

¹¹It should be noted that the main SIC code of the firm reported by Compustat is not always representative of the firm's main cash-generating line of business (core business). Kahle and Walkling (1996) point out that SIC codes change over time, even though researchers using the latest Compustat have access only to the latest SIC code, which could be different from the SIC codes appropriate for previous years.

¹²Servaes (1996) points out that a straightforward examination of the 4-digit SIC codes of the segments of the firm does not necessarily reveal the degree of diversification of the firm. He argues that the use of the 4-digit SIC code would be too wide to identify the industrial structure of the firm. Similarly, Kahle and Walkling (1996) show how a 4-digit SIC code assigned to a firm might be misleading with regard to the most reasonable 2- or 3-digit classifications.

¹³The annual figures are not reported but are available upon request.

¹⁴The second restriction was used in 14 cases for single-segment firms and in three cases for multi-segment firms.

¹⁵The estimation of the imputed value is similar to the procedure used in recent studies (Denis *et al.*, 2002; Bodnar *et al.*, 1999).

¹⁶In these sets of regressions, we control for the firm-specific characteristics of long-term debt, EBIT margin, R&D to capital expenditures. We also control for the change in the market for corporate control with calendar year dummies (not reported).

¹⁷An alternative method is to use Heckman's (1979) self-selection model to control for bias in bidders' decision.

¹⁸Mansi and Reeb (2002) argue that the use of book value of debt in estimating the excess valuation measure of Berger and Ofek (1995) creates a downward bias in industrially (multi-segment) diversified firms.

¹⁹Mansi and Reeb (2002) define the book value bias of debt similarly.

²⁰We focus exclusively on the straight debt issues of cross-border bidders: therefore we exclude zero-



coupon and floating, convertible, callable and puttable issues of debt. We also exclude debt issues with less than 3 years to maturity and an age of maximum 3 years since the issue. In our subsample where we

obtain the year-end weighted average price of bidders' long-term debt, the mean long-term leverage is 50.21%, with a minimum of 11.41% and a maximum of 94.64%.

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