

Corporate Multinational Flexibility Option and Bankruptcy Resolution

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Abstract

This study is to examine the effects of a firm's multinational flexibility option on the outcomes of Chapter 11 and durations in the process. For a sample of 403 U.S. companies that filed for bankruptcy protection under Chapter 11 of the U.S. Bankruptcy Code, we find that multinational enterprises (MNEs) are more likely to emerge from Chapter 11 than domestic enterprises (DEs). Further examination finds that foreign sales ratio is not a significant predictor of successful emergence from Chapter 11, but foreign asset ratio and the number of foreign countries with a revenue-generating subsidiary improve the likelihood of emergence from Chapter 11, suggesting the advantages of multinational network such as operating flexibility, tax savings, and financing advantage.

Key Words: Multinational Network, Flexibility Option, Bankruptcy Resolution, Chapter 11.

Introduction

Over the years following the Bankruptcy Reform Act of 1978, a great deal of the literature has examined the Chapter 11 bankruptcy issues including the determinants of Chapter 11 filing (Gilson, John and Lang, 1980; Charterjee, Dhillon and Ramirez, 1996; Kim and Kwok, 2009), the corporate decisions during Chapter 11 process (Maksimovic and Phillips, 1998), the duration of Chapter 11 process (Bandopadhyaya, 1994; Orbe, Ferreira and Nunez-Anton, 2002), and outcomes and post-performance (Franks and Torous, 1994; Hotchkiss, 1995).

More recently, some have examined Chapter 11 firms through the entire reorganization process. Denis and Rodgers (2007) find that among firms that filed Chapter 11, smaller firms have better operating performance, and those in higher operating margin industries spend less time in Chapter 11. They also show that firms are more likely to emerge as going concerns and to achieve positive post-reorganization profitability if they significantly reduce assets and liabilities while in Chapter 11.

None of the recent studies on Chapter 11 process, however, has examined the impact of a firm's multinational network, more specifically a firm's multinational flexibility option on the resolution of Chapter 11 reorganization, to the best of our knowledge. Therefore, the objective of this study is to explore the effects of a firm's multinational network on the Chapter 11 bankruptcy process, specifically focusing on the immediate outcomes of Chapter 11 reorganization and on the duration in the Chapter 11 process.

Numerous studies find a positive relationship between a firm's multinationality and its value. For example, Kogut and Kulatilaka (1994) posit that an increase in multinationality enhances corporate flexibility and thereby reduces risk. Other studies find that multinational enterprises (MNEs) have greater competitive options, operational flexibility, and advantages in production and distribution (Caves, 1996; Dunning and McQueen, 1981; Kim, Hwang and Burgers, 1993; Rugman, 1982), which may create opportunities for more rapid as well as more successful emergence from the Chapter 11 bankruptcy process than domestic enterprises (DEs).

In this study, we use a sample of 403 U.S. companies (with 204 MNEs and 199 DEs) that filed for bankruptcy protection under Chapter 11 of the U.S. Bankruptcy Code. We find that MNEs are more likely to emerge from Chapter 11 bankruptcy than DEs. Further examination shows that neither foreign sales ratio nor foreign assets ratio is a significant predictor of successful emergence from Chapter 11. However, the number of foreign countries with a revenue-generating subsidiary is a significant predictor of the emergence. A firm's multinationality *per se* does not seem to improve the likelihood of emergence from bankruptcy, but the scope of multinational network does, due to the network advantages like operating flexibility, tax savings, and financing. The results also indicate that, on average, MNEs spent 34.2 more days in bankruptcy than DEs, but this difference is not statistically significant.

Reviewed in the next section are foundational theories and essential empirical studies, and research hypotheses are developed. The next section presents the data and research methods, followed by a section of empirical findings. The last section offers the summary and conclusions.

Literature Review and Testable Hypotheses

Chapter 11 Reorganization Process

Outcomes of Chapter 11 reorganization: Filing for corporate bankruptcy is required under Chapter 11 of the 1978 Bankruptcy Code, where management and owners seek court protection against creditors and other claimants while their firm undergoes formal reorganization.

Under this situation, the firm can undertake a prepackaged bankruptcy, or it has 120 days following the filing date to propose a plan of reorganization. Once the plan is filed, creditors can approve via unanimous consent or the court unilaterally imposes the reorganization plan. Once the plan is ratified by the court, the plan is approved and the firm exits the Chapter 11 bankruptcy process. Bankruptcy filing of a publicly traded firm is finally settled in the following three alternative resolutions: (a) successfully emerged as an independent entity, (b) acquired by other firms, or (c) liquidated.

The fate of the firms that declared bankruptcy has been examined by researchers like Altman (1993), Daily (1996), and Moulton and Thomas (1993). For example, LoPucki and Whitford (1993) found that larger firms are more likely to emerge from bankruptcy as public companies. Moreover, firms that enter bankruptcy with a greater number of business (unrelated products) lines may be able to turn around their companies by divesting in unprofitable operations and focusing on core business.

Thus, this may mean that firms with single line products (related) may not possess the resources or time to exploit all of the economic benefits or even afford all the cost associated with bankruptcy recovery. Therefore, the bankrupt firms with related product lines are more likely to liquidate (Dawley, Hoffman and

Brockman, 2003; Hotchkiss, 1995).¹ Hotchkiss (1995) documented that among the firms filing for reorganization, only 24% successfully reorganized.

Kim and Kim (1999) found for a sample of Korean firms that the firms with more free assets, less liquid assets, larger size, lower operating risk, or more goodwill, tend to be reorganized, as it is easier for such firms to obtain additional financing needed for a successful reorganization. Most recently, Denis and Rodgers (2007) find that firms are more likely to emerge as independent identities and to achieve positive post-performance if they significantly reduce assets and liabilities while in Chapter 11.

Duration in Chapter 11 filing: Bourgeois (1981) defined 'slack' as the cushion of resources that allows an organization to successfully adapt to internal and external changes. Larger firms possess larger amounts of slack resources, which could be drawn upon during financially difficult times (Flynn and Farid, 1991; Moulton and Thomas, 1993). Franks and Torous (1989) documented an average time spent in bankruptcy of 3.67 years for a sample of 30 firms. They concluded that time spent in Chapter 11 bankruptcy depend not only on the size of the company but also on the number of creditors and the complexity of the financial claims and bargaining process.

Bandopadhyaya (1994) found the time spent in Chapter 11 process is shorter for firms with high interest amounts outstanding and high capacity utilization. Further, the longer a firm spends in Chapter 11 bankruptcy protection, the higher the probability of exiting from the Chapter 11. Orbe, Ferreira and Nunez-Anton (2002) reported that time spent in bankruptcy is shorter for prepackaged bankruptcies than for the traditional procedures. In contrast, Tashjian, Lease and McConnell's (1996) study with the similar focus showed inconclusive results.

Dahiya, John, Puri and Ramirez (2003) found that larger firms are more likely to obtain debtor-in-possession (DIP) financing, thereby typically having greater access to capital markets, and spend less time in Chapter 11. Dawley, Hoffman and Brockman (2003) also posited that larger firms should have a greater probability of Chapter 11 bankruptcy survival and a shorter recovery time than smaller organizations, and found consistent results. Denis and Rodgers (2007), however, found firms with smaller size and with better pre-filing operating performance spend less time in the Chapter 11 process. In sum, the literature on bankruptcy outcomes and duration is still mixed and inconclusive.

Value of a multinational network and the resolution of bankruptcy

Following the work of Black and Scholes (1973), Myers (1977) applied financial option theory to non-financial or real assets, thereby coining the term *real options*. Real options are discretionary investments that provide firms with the right, but not the obligation, to undertake some action in the future. Thus, real options are investments that provide the firm flexibility to avoid downside outcomes and exploit emerging opportunities, by shifting value-chain activities across country borders in response to changes in local demand, competitors' actions, foreign exchange rates, input prices, and other environmental contingencies (Allen and Pantzalis, 1996; Kobrin and Kogut, 1983; Kogut, 1989; Trigeorgis, 1997).

Real option theory presents the potential benefits of a firm's multinational network. Kogut and Kulatilaka (1994) argued that the across-country growth option has values because it provides operating flexibility to management. The values exist in the network through which management can flexibly coordinate multinational activities and strategically can respond to the realization of unexpected events, which may adversely affect the firm's operation and performance.

As an example, Kogut and Kulatilaka (1994) examined the option value of the production flexibility of MNEs under uncertain real exchange rates. They suggested that building a network of subsidiaries in

¹ Duru and Reeb (2002) showed that industrial diversification and geographic diversifications are correlated ($\rho=0.07$) at 1% level.

multiple countries generates operating flexibility that adds value for the firm. The shifting of the production will position the firm to take advantage of uncertain events, such as governmental policies, cost of production, and favorable exchange rates. Unlike MNEs, DEs are not able to exploit this flexibility and therefore have to bear any adverse consequences of such contingencies.

Rangan (1998) provided empirical evidence that exchange rate movements trigger global shifts in manufacturing and sourcing activities by multinational firms. Chung, Lu and Beamish (2005) also found that, during times of economic crisis, subsidiaries actualize the underlying operational flexibility that exists in multi-country networks. For example, if one subsidiary location is in an economic crisis, affected subsidiaries can utilize their *MNE* networks to modify and restructure their operations by redirecting activities to more profitable markets (Sundaram and Black 1992). The operational flexibility enhances the probability of the subsidiary surviving during times of economic crisis.

More recently, Greene, Hornstein and White (2009) examined the deviation of a firm's estimated marginal Tobin's q from a benchmark as an indicator of effective resource allocation. They found among 332 U.S. manufacturing firms (SIC codes 2000-3999) from 1992-2000 that more effective capital budgeting decisions are made by widespread multinationals, especially for MNEs present in 10 or more foreign countries, after controlling for corporate governance, firm and host-country factors. Their results were robust across various measures of multinationality based on number of countries or number of foreign subsidiaries.

Based on the previous studies mentioned above, therefore, we posit that the advantages of MNEs during the Chapter 11 bankruptcy process would be their operation flexibility to shift production to locations with lower labor and material cost, and to take advantage of more favorable government regulations and exchange rates. As a result, MNEs can minimize expenses including tax liabilities, thereby increasing their profitability worldwide.

The flexibility of the MNEs to increase positive cash flow will aid in reducing time spent in the Chapter 11 bankruptcy process and increase the likelihood of financial stability during the resolution of bankruptcy. In summary, the outcomes of Chapter 11 reorganization will be positively influenced by multinational networks of bankrupt firms, and we propose the following hypotheses.

H₁: MNEs are more likely to emerge from Chapter 11 bankruptcy than similar DEs, *cet. par.*

H₂: The degree of a firm's multinationality has a positive effect on the emergence from its Chapter 11 bankruptcy, *cet. par.*

Although a firm's multinational network has a positive effect on the duration on bankruptcy process through better operating performance, the complexity of the same network may make it more difficult for the creditors to identify and value the assets present around the world, and to negotiate with the equity holders. Hence, the effect of corporate multinationality on the duration of Chapter 11 will be an empirical issue, and we propose the following hypotheses:

H₃: The duration in Chapter 11 bankruptcy process for MNEs is different from that for DEs, *cet. par.*

H₄: The degree of multinationality of a firm is related with its duration in Chapter 11 bankruptcy, *cet. par.*

Research Methods

Data

The companies that filed Chapter 11 bankruptcy were collected from New Generation Research, Inc. (1992-2006) and UCLA Law School's Bankruptcy Research Database. New Generation Research obtains data from publicly available information sources including U.S. Bankruptcy Court filings, SEC filings, news and wire sources, company websites, and various trade publications. The initial sample consisted of

all Chapter 11 bankruptcy cases with assets worth at least \$100 million at the time of filing, measured in 1980 dollars. The company is also required to file annual reports with the SEC. The period of 1992 through 2006 was chosen, as this was the most current information available. The initial sample of Chapter 11 bankruptcies by publicly traded corporations for the 1992 through 2006 period included 575 corporate filings.

To clean the data set, first, all non-U.S.-domiciled corporations were eliminated. Second, corporations with missing variables were eliminated (86). Third, consistent with Barniv, Agarwal and Leach (2002), Hambrick and D'Aveni (1998) and Moulton and Thomas (1993), regulated industries such as utilities, railroads, healthcare, trucking and other transportation and financial institutions (banks, insurance companies, mortgage companies, thrifts, etc.) were excluded, as bankruptcy is handled differently for these industries.² The final sample consists of 403 U.S.-domiciled corporations that filed Chapter 11 bankruptcy protection (204 MNEs and 199 DEs).³

Variables

MNE has many definitions. Annavarjula and Beldona (2000, pp.51-52) provided a sample listing of 14 definitions of an MNE by prior researchers. Sullivan (1994, 1996) identified three key components to multinationality: Foreign market penetration, foreign production presence, and country scope. Following Brooke and Remmers (1970) and Dunning (1971), MNE is defined as a corporation that operates subsidiaries in another country outside of the United States that generates foreign sales.

Multinationality often has been measured using foreign sales—total sales ratio (Dunning 1985; Geringer, Beamish and daCosta 1989; Michel and Shaked 1984; Tallman and Li 1996; Sullivan 1994). A less commonly used measure is foreign assets—total assets ratio (Grant, Jamine and Thomas 1988; Stopford and Dunning 1983). Geographical measures, such as number of foreign countries and number of foreign affiliates, were also utilized to measure multinationality (Allen and Pantzalis 1996; Gomes and Ramaswamy 1999; Mishra and Gobeli 1998; Morck and Yeung 1991; Sullivan 1994).

As there is no clear generally accepted measure of the degree of multinationality, this study will use all three measures: foreign assets ratio (FAR), foreign sales ratio (FSR) and number of countries generating sales from a subsidiary (NOFC). Emergence from Chapter 11 (EMG) will be measured as an independent organization exiting the Chapter 11 bankruptcy process with court confirmation and without being liquidated, acquired or merged (Sudarsanam and Lai, 2001). The duration of Chapter 11 bankruptcy will be defined as the number of days from the Chapter 11 filing date to the confirmation date as set forth by the bankruptcy Judge (Dawley, Hoffman and Brockman, 2003; Franks and Torous, 1989; Bandopadhyaya, 1994; Tashjian, Lease and McConnell, 1996).

Presented in Table 1 are the variables and their measurements. Several variables are added to control for effects of size, product diversification, CPI, industry growth, GDP growth, financial risk, and level of economic distress.

Hypotheses 1 and 2 examine a single binary outcome variable (EMG) with logistic regressions. The MNE/DE dummy variable and the degree of multinationality variables (FSTS, FATA and NOFC) are employed to predict whether a company successfully emerges from Chapter 11 (EMG). Hypotheses 3 and 4 employed OLS regression analysis. The examination then entailed whether the independent variables and

² Eliminates are 28 transportation companies with the first two SIC numbers of 41, 42, 44 or 45, 16 healthcare companies with the first two SIC numbers of 80-83, 23 financial institutions with the first two SIC numbers of 61, 63 or 67, and 19 utilities with the first two SIC numbers of 49.

³ The sample in this study provides the majority of those corporations that are publicly held and domiciled in the U.S., and have filed for Chapter 11 bankruptcy.

Table 1. Variable Description and Measures

Variable	Measurements
EMG	Did at least one company of the debtor group emerge from bankruptcy under the confirmed plan and not refile for Chapter 11 bankruptcy (1 = emerge and no re-file, 0 = no emerge and liquidated or merged).
DAYS	Number of days from Chapter 11 filing to confirmation approved by the bankruptcy court.
	Degree of Multinationality is measured by:
FS/TS	Foreign sales to total sales ratio,
FA/TA	Foreign assets to total assets ratio, and
NOFC	Number of countries generating sales from a subsidiary.
MNE/DE	1 if enterprise operates at least one foreign subsidiary; 0 otherwise.
SIZE	Log of enterprise total assets (\$000)
IGR	Annual industry growth rate (% change year-to-year).
UNREL	1 if firm's business lines are unrelated; 0 if related.
GGR	Annual GDP growth rate (% change year-to-year).
CPI	Consumer Price Index at time of firm filing tied to 1980 dollars.
LTD/TA	Long-term debt to total asset ratio.
EBITDA/TA	Earnings before interest, taxes, depreciation and amortization divided by total assets.

their interaction collectively accounted for a significant proportion of the variance in the outcome variable (DAYS).

Control variables

In this study, there are several control variables: Firm size (SIZE), industry growth rate (IGR), product diversification (UNREL), GDP growth rate (GGR), Consumer Price Index (CPI), financial risk (LTD/TA) and economic distress (EBITDA/TA).

SIZE (the natural log of company assets): Prior studies (Buckley and Pearce 1984; Buckley, Dunning and Pearce 1977; Gomes and Ramaswamy 1999; Haar 1989; Kumar 1984; Markides and Ittner 1994) have used the log of total sales to control for firm size. Moulton and Thomas (1993) proposed that large firms had a better chance of reorganizing than small firms because of the firm's large and varied assets. Larger firms are better able to survive substantial losses and decreases in size than smaller firms are. Large firms are more likely to have some successful business lines that can survive the bankruptcy process and serve as the cornerstone for reorganization, as well as have the assets that can be sold to provide cash for continuing business operations. In support, Dawley, Hoffman and Brockman (2003) found larger firms have a greater probability of surviving bankruptcy than smaller firms. As a final note, acquisitions and mergers of very large firms also may be constrained by antitrust considerations. Conversely, large firms (MNEs) are not immune to failure just because they typically have a greater number of assets and business lines than DEs (Hotchkiss 1995; LoPucki and Whitford 1993). Their underutilized resources (excess slack) may have a negative impact on firm performance in times of organizational growth. High slack firms may become complacent and engage in minimal initiatives (Starbuck, Greve and Hedburg 1978).

IGR (industry growth rate): Maksimovic and Phillips (1998), using plant-level data, found that productivity, asset sales, and closures are more affected by industry conditions than Chapter 11 status. Bandopadhyaya (1994) found that firms with high capacity utilization of their respected industry spent a shorter period in the Chapter 11 bankruptcy process.

That is, firms belonging to industries that are undergoing a positive business climate spent less time in the Chapter 11 bankruptcy process. Those studies gave a good reason to control for industry conditions in a

multivariate study. This study's use of the annual industry growth rate (IGR) as a control variable is also supported by Alderson and Betker (1999).

UNREL (1 if product lines are unrelated; 0 if related): Variable UNREL is chosen to control for product diversification, consistent with Rumelt (1974). Prior research has shown that diversification type may affect the performance of troubled firms (Grant, 1987; Hotchkiss, 1987; Lamont, Williams and Hoffman, 1994; Moyer and Lamy, 1992). The notion that firms with unrelated product lines are less efficient than those with related product lines is supported by LoPucki and Whitford (1993), who argued that firms that enter bankruptcy with a greater number of business lines (unrelated product diversification) may be able to turn around their companies by divesting in unprofitable operations and focusing on core business.⁴

Other Control Variables: GGR (GDP growth rate) and CPI (Consumer Price Index) are used to control for the national economic conditions. *LTDTA (long term debt divided by total assets)*: to measure a company's level of financial risk. *EBITDATA (earnings before interest, taxes, depreciation and amortization divided by total assets)*: This variable is used to measure a firm's level of economic distress preceding Chapter 11 bankruptcy filing, consistent with Gilson, John and Lang (1990) and Chatterjee, Dhillon and Ramirez (1996). It needs to note that duration in days (DAYS) may affect the outcome of Ch.11 process. Orbe, Ferreira and Nunez-Anton (2002) found that the longer a firm spends in the Chapter 11 process, the higher is the probability of a successful departure.

Empirical Findings

Table 2 shows the correlation among variables. The coefficients do not show signs of severe collinearity for this sample. The final sample consisted of 403 U.S.-domiciled corporations that filed Chapter 11 bankruptcy protection. Table 3 presents the descriptive statistics of the variables.

Table 2. Correlation Matrix of Variables

	EMG	DAYS	MNE /DE	SIZE	IGR	UN REL	GGR	CPI	LTD TA	EBIT DATA	FA/ TA	FS/ TS
EMG	1											
DAYS	-.315**	1										
MNE /DE	.000	.043	1									
SIZE	.105*	.138**	.133**	1								
IGR	.037	.006	.008		1							
UNREL	.057	-.033	-.086	-.127*		1						
GGR	.261	.516	.086	.011		.094	1					
CPI	.123*	.036	.054	.042	.061			1				
LTD TA	.015	.471	.285	.405					1			
EBIT DATA	.051	.055	-.041	-.240**	.218**	.127*				1		
FA/ TA	.311	.272	.410	.000	.000	.011					1	
FS/ TS	-.064	-.003	.205**	.274**	-.229**	-.238**	-.290**					1

⁴ Chen and Jaw (2013) showed a positive association between corporate network clustering and product diversification, but did not examine the network's effect on multinational diversification or financial distress.

LTD/TA	-.050	.104*	-.034	.277**	-.024	.017	.018	.017	1			
EBITDATA	.325	.039	.494	.000	.633	.728	.726	.739				
FA/TA	-.064	.083	-.062	.155**	.006	-.001	.085	-.016	.934**	1		
FS/TS	.205	.100	.215	.002	.898	.982	.092	.752	.000			
NOFC	-.022	-.025	.347**	-.107*	-.030	-.014	.037	.073	-.014	-.017	1	
	.658	.618	.000	.033	.552	.774	.460	.146	.778	.738		
	.009	-.031	.493**	.086	-.046	-.008	-.016	.155**	-.018	-.039	.512**	1
	.865	.543	.000	.085	.359	.866	.746	.002	.718	.440	.000	
	.110*	.055	.545**	.219**	-.042	.033	-.086	.122*	-.015	-.081	.317**	.481**
	.029	.276	.000	.000	.399	.512	.085	.014	.769	.107	.000	.000

Table 3. Descriptive Statistics

Variables	Mean	Median	Standard dev
EMG	0.090	0.000	0.280
DAYS	322.630	139.500	350.270
SIZE	8.720	8.670	0.470
UNREL	0.150	0.000	0.360
GGR	0.030	0.040	0.010
CPI	161.220	162.100	12.910
LTD/TA	0.310	0.180	0.340
EBITDA/TA	-0.090	-0.010	0.310
MNE/DE	0.430	0.000	0.500
FA/TA	0.090	0.000	0.190
FS/TS	0.080	0.000	0.170
NOFC	2.890	0.000	6.050
Total Assets (\$000)	\$1,190,000	\$465,000	\$3,070,000
Foreign Assets (\$000)	\$54,300	\$0	\$126,000
Sales (\$000)	\$1,040,000	\$730,000	\$1,130,000
Foreign Sales (\$000)	\$77,900	\$0	\$172,000
LTD (\$000)	\$367,000	\$74,400	\$1,620,000
EBITDA (\$000)	-\$72,700	-\$3,930	\$543,000
No. Unrelated Lines	1.300	1.000	0.790

Table 4 presents the results from logit regressions of emergence from Ch.11. In Model I, the eight independent variables were found to be collectively significant, $X^2(8) = 66.81, p < .001$, indicating that the covariates was a significant predictor of emergence. The eight covariate predictors collectively accounted for approximately 21% of the variance in the probability of the company emerging (pseudo R-square = .213).

Table 4. Logit Regression Results: Emergence from Chapter 11
Dependent Variable: Successful emergence from Chapter 11 bankruptcy (binary)

	Model I	Model II	Model III	Model IV
Intercept	-3.113* (1.602)	-3.396** (1.606)	-3.238 ** (1.597)	-2.541 (1.615)
MNEDE	0.506** (0.218)			
FA/TA		1.379** (0.622)		
FS/TS			0.556 (0.482)	
NOFC				.047** (0.019)
SIZE	0.235** (0.109)	0.264** (0.108)	0.257** (0.108)	.203* (0.110)
IGR	1.613 (2.303)	1.453 (2.292)	1.365 (2.276)	1.328 (2.284)
UNREL	0.079 (0.382)	0.086 (0.380)	0.108 (0.379)	0.073 (0.381)
GGR	12.635 (9.220)	12.216 (9.231)	11.540 (9.169)	12.908 (9.288)
CPI	-3.223 (14.296)	-2.348 (14.319)	-2.388 (14.211)	-4.474 (14.368)
LTDTA	-.003 (0.161)	0.009 (0.164)	0.006 (0.163)	-0.004 (0.166)
EBITDATA	0.242 (0.236)	0.228 (0.237)	0.235 (0.234)	0.313 (0.242)
DAYS	-0.001** (0.001)	-0.001** (0.000)	-0.001*** (0.000)	-0.002*** (0.000)
Nobs	393	393	393	393
pseudo R²	.130	.129	.117	.134

*, **, and *** Significance at the 10%, 5%, and 1% levels, respectively. Standard errors are in parenthesis. See Table 1 for variable descriptions.

In general, the results in Table 4 are consistent with our expectations. The results for our primary interest variables, MNE/DE (Model I), FA/TA (Model II), and NOFC (Model IV) are all statistically significant at the 5% level. Our results suggest that MNEs are more likely to emerge from Chapter 11 bankruptcy than DEs, especially when MNEs have higher operating flexibility due to their multinational network resulting from their revenue generating foreign subsidiaries as well as foreign assets.

However, foreign sales variable (see Model III in Table 4) is not statistically significant, because foreign sales may include exports and the foreign sales ratio is not a good indicator of a MNE's operating flexibility based on its network. In Table 4, other statistically significant variables are SIZE and DAYS, which are consistent with the results of previous studies. Larger firms are more likely to emerge from Chapter 11 reorganization and if the bankruptcy process is being delayed, the distressed firms are less likely to emerge as an independent identity from bankruptcy.

Table 5. Regression Results: Duration of Chapter 11
Dependent Variable: Duration of Chapter 11 bankruptcy

	Model V	Model VI	Model VII	Model VIII
(Constant)	-511.3 (328.8)	-520.2 (328.0)	-533.5 (328.0)	-461.9 (335.3)
MNE/DE	18.374 (45.549)			
FA/TA		-40.479 (123.515)		
FS/TS			-91.411 (101.07)	
NOFC				3.011 (3.615)
SIZE	62.204*** (22.112)	63.800*** (21.885)	65.217*** (21.928)	58.729 *** (22.599)
IGR	-435.4 (479.713)	-454.9 (479.0)	-466.5 (478.5)	-440.3 (478.35)
UNREL	60.919 (78.921)	61.821 (78.916)	59.047 (78.886)	60.464 (78.861)
GGR	3096.4 (1900.3)	3080.9 (1900.7)	3127.1* (1899.0)	3112.4 (1899.1)
CPI	3766.3 (2991.7)	3807.6 (2990.7)	3829.9 (2988.0)	3595.1 (2998.6)
LTDTA	-1.337 (32.831)	-1.122 (32.827)	-1.329 (32.797)	-1.374 (32.803)
EBITDATA	59.520 (47.540)	59.038 (47.527)	57.714 (47.503)	63.819 (47.840)
Nobs	386	386	386	386
F	1.945*	1.938*	2.030**	2.014**
Adj-R2	0.019	0.019	0.021	0.021

*, **, and *** Significance at the 10%, 5%, and 1% levels, respectively. Standard errors are in parenthesis. See Table 1 for variable descriptions.

Table 5 presents the results from multiple regression analyses performed to predict whether multinationality affects a significant proportion of the variance in days spent in bankruptcy above and beyond the control variables of size, industry growth rate, unrelated business lines, GDP growth, CPI, LTDTA and EBITDA.

In Table 5, the results from our primary multinationality variables are not statistically significant, suggesting that the level of a firm's multinationality may not be directly related to the duration of Chapter 11 bankruptcy. On the other hand, the only statistically significant variable is SIZE. In all four models in Table 5, the coefficients of SIZE are all positive and statistically significant at the 1% level. The results are somewhat consistent with previous studies. Larger firms tend to have more complex organizational and financial structures than smaller firms do, hence, those larger firms tend to have longer period to go through the bankruptcy process.

Summary and Conclusions

The purpose of this study is to investigate the effects of multinationality on the Chapter 11 bankruptcy process, specifically on the successful emergence from Chapter 11 and on the duration in the process. For the sample of 204 MNEs and 199 DEs, we find MNEs are more likely to emerge from Chapter 11 bankruptcy than DEs by an increased odds ratio of 1.77, which is marginally significant.

In multiple regressions, three measures of degree of multinationality are used: Foreign sales ratio, foreign assets ratio, and number of foreign countries with a subsidiary. The results suggest that number of foreign countries with revenue generating subsidiary and foreign assets ratio are significant predictors of likelihood to successfully emerge from Chapter 11 bankruptcy. However, foreign sales ratio is not a significant predictor of such likelihood. Our results suggest that internationalization *per se* does not seem to improve the likelihood of emergence from bankruptcy, but the scope of multinational network does, probably due to the advantages of multinational network like operating flexibility, tax savings and financing advantage.

This study also examines the duration of a firm in the Chapter 11 bankruptcy process. The results indicate that, on average, MNEs spent 34.2 more days in bankruptcy than DEs, but this difference is not significant. Additional examination was performed to predict whether FA/TA, FS/TS and NOFC could predict a significant proportion of the variance in days spent in bankruptcy. None is a significant predictor of the number of days spent in bankruptcy.

This study will generate interest, as it could be complemented in various ways. One possible extension is to expand the definition of "successful emergence" used in this study. Examining the returns of firms emerging over a period would provide useful information to investors and researchers.

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