



## Corporate international diversification and risk



Alain A. Krapl

University of Northern Kentucky, Haile/US Bank College of Business, Nunn Drive, Highland Heights, KY 41099, United States

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### ABSTRACT

This study analyzes the effects of corporate international diversification (CID) on risk. Results document a mostly positive relation between CID, as measured by four different empirical proxy variables, and equity risk. I also find that diversification increases the volatility of cash flows and earnings. There is no empirical support of a reduction in correlations between firm-level and domestic market-level cash flows of internationally diversified firms. Finally, this study shows that the risk-increasing effects of CID are stronger for firms that are in more advanced stages of the internationalization process. The latter finding would be consistent with firms expanding to more risky countries in their latter stages of CID.

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### 1. Introduction and motivation

Corporate international diversification (CID) is a double-edged sword. Firms that generate cash flows and own real investments in multiple imperfectly correlated markets can decrease risk due to diversification benefits. However, international expansion also exposes firms to additional sources of risk. Whether international diversification is risk-decreasing or risk-increasing depends on which of these two effects is dominant. Of course, a third possibility exists where the costs and benefits of CID balance each other out or are insubstantial. If this is the case, CID has no impact on the firm's riskiness. Extant literature finds empirical evidence supporting all three possibilities. Thus, whether and how CID affects a firm's riskiness remains unanswered.

Understanding the effects of corporate international diversification on risk is becoming increasingly important. As technological innovation has made international expansion more feasible and many countries have reduced barriers to international capital and trade flows, international investment has increased substantially.<sup>1</sup> Moreover, costly global financial events such as the Asian Financial Crisis, the Global Financial Crisis, and the Euro-zone Crisis have sparked discussions about financial

market integration and contagion and further highlight the importance of understanding firm-level risks associated with CID.

Early research mostly argues that international diversification is risk-reducing. Landmark studies include Hughes, Logue, and Sweeney (1975), who find that internationally diversified firms have lower systematic risk, idiosyncratic risk, and total risk.<sup>2</sup> Risk-reducing effects are also documented by Fatemi (1984), who demonstrates that a portfolio of multinational firms has lower total risk and lower systematic risk compared to a portfolio of domestic firms. More evidence of risk reduction is presented by Michel and Shaked (1986), who find that a sample of multinational firms exhibits lower systematic risk and lower total risk compared to a sample of domestic corporations.

Some studies document insignificant or ambiguous effects of CID on risk. Mikhail and Shawky (1979) fail to find significant differences in coefficients of variation and stock return volatilities.<sup>3</sup> Goldberg and Heflin (1995) raise an interesting issue, arguing that most currency and political risk is diversifiable. Their argument implies that the costs of CID

<sup>2</sup> Other similar studies include: Agmon and Lessard (1977), who find that international diversification reduces systematic risk relative to a domestic market portfolio but simultaneously increases systematic risk vis-à-vis a foreign market portfolio. Rugman (1976) concludes that foreign operations of multinational firms increase earnings stability mainly through the diversification of the firm's sales across imperfectly correlated economies.

<sup>3</sup> Also Jacquillat and Solnik (1978) compare investments in U.S. multinational firms and foreign stocks and conclude that investing in the stock of internationally diversified firms is a poor substitute for investors' portfolio diversification. The authors argue that corporate international diversification has little effect on the systematic risk of firms. Similarly Brewer (1981) compares market security lines between multinational firms and domestic firms and finds no differences in their average return and risk parameters.

E-mail address: krapla1@nku.edu.

<sup>1</sup> According to a United Nation's estimate (UNCTAD, 2014), annual foreign direct investment (FDI) reached \$1.46 trillion after an 11% increase during 2013. Although still lower than in 2007 (\$2 trillion), annual FDI has been continually recovering since its drop-off during the Global Financial Crisis. This recovery has been primarily driven by FDI flows to developing economies (\$759 billion in 2013) and transition economies (\$126 billion in 2013).

outweigh the diversification benefits at the individual firm-level, but diversification benefits dominate at the portfolio-level. Consistent with their argument, the study's empirical results show that international diversification decreases systematic risk but increases total risk.

Some more recent papers argue that CID is risk-increasing while other recent work suggests that the relation between CID and risk depends on additional factors such as the psychic distance to target countries and which measures are used to proxy for CID.<sup>4</sup> Risk-increasing effects are documented by *Reeb, Kwok, and Baek (1998)*, who show that firms with higher foreign sales and foreign asset ratios have higher CAPM betas. This finding is largely confirmed by *Olibe, Michello, and Thorne (2008)*, who expand the analysis to include geographical segment data. A more complex relation between CID and risk is illustrated by *Kwok and Reeb (2000)*. Their study finds that international diversification is risk-increasing when firms from more developed markets invest in less developed markets. The opposite holds true when firms from less developed markets make investments in more developed markets.<sup>5</sup> In a recent study, *Aabo, Pantzalis, Sørensen, and Teilmann Toustrup (2014)* demonstrate that different proxies of CID capture different aspects of the diversification process. Using a sample of Scandinavian firms, the authors document that foreign sales are risk-increasing, foreign assets are risk-neutral, and external sourcing from foreign suppliers is actually risk-reducing.

This study expands the analysis of CID and risk in several dimensions. While most prior work focuses on the effects of diversification on equity risk, this paper includes an analysis of earnings and cash flow volatilities, which is important for three reasons. First, the effects of CID on earnings and cash flow volatilities are not subject to investor perception and reaction. Second, a joint analysis of equity and cash flow risk is valuable because it can roughly distinguish between fundamental (cash flow-based) changes to corporate risk and changes that are subject to market reaction (equity return-based). Third, market-assigned measures of risk are forward looking, while accounting-based measures of risk capture historic values. An additional important contribution of this study is the analysis of diversification effects on the correlations between firm-level and domestic market-level cash flows. This is a point of interest to financial researchers because CID hypothetically reduces such correlations and thus provides diversification benefits (e.g., *Reeb et al., 1998; Severn, 1974; Shapiro, 1978*). To my knowledge no prior study has directly tested this hypothesis.<sup>6</sup>

Another innovation in this paper is the use of four different proxy variables of CID. In addition to foreign sales ratios, foreign asset ratios, and geographical segment data (e.g., *Aabo et al., 2014; Goldberg & Heflin, 1995; Olibe et al., 2008; Reeb et al., 1998*), I use foreign exchange (FX) exposure as an alternative measure of CID. The use of this FX exposure enables me to study a broader sample that includes many small- to medium-sized corporations; equity and FX return data are more widely available than accounting-based geographic segment data. The inclusion of small- and medium-sized firms is important because they often are overlooked in empirical studies of similar kind but can have substantial international activity.<sup>7</sup> Another advantage of using four different measures of CID is that each CID proxy captures a different aspect of the internationalization process; therefore, observing differences in

effects across the measures provides valuable insight into the relation between CID and risk. Finally, this paper also provides an analysis of whether the effects of CID on risk are different for firms that are in earlier stages of international diversification compared to firms that are in more advanced stages.

This study yields several important results. First, I find that international diversification increases systematic risk, idiosyncratic risk, and total risk of equity. Second, I report a positive relation between diversification and cash flow and earnings volatilities. Third, I observe that the risk-increasing effects of CID are exacerbated for firms that are in more advanced stages of international diversification. Finally, I find no empirical support for a meaningful reduction in correlations between firm-level and domestic market-level cash flows. Similarly, there are no reductions in the correlations of earnings.

## 2. Hypotheses and related theory

Literature commonly presents several advantages of corporate international diversification that, if recognized by rational investors, should decrease the riskiness of the company's stock. First, there is the value-adding function that a multinational company performs for its shareholders in the presence of imperfectly integrated capital markets. When investors are faced with barriers to capital flows, their ability to diversify portfolios internationally is limited. By being portfolios of internationally diversified real assets, multinational firms enable their equity holders to diversify their personal portfolios indirectly (*Agmon & Lessard, 1977; Hughes et al., 1975*). Second, there is the argument that internationally diversified firms are simply less risky from a portfolio theory perspective. The multinational firm itself is more highly diversified compared to a pure domestic corporation and is likely to provide its shareholders with superior risk and return opportunities (*Fatemi, 1984*). Moreover, international corporate diversification potentially reduces the probability of bankruptcy (*Michel & Shaked, 1986*) in a fashion that is analogous to corporate conglomeration (*Lewellen, 1971*). Lastly, international diversification can also reduce the riskiness of the firm by increasing its debt capacity (e.g., *Hughes et al., 1975; Logue & Merville, 1972*). If investors recognize the benefits of the corporation's international diversification, they are likely to assign lower measures of risk to the firm's equity.

Contrary to this view, several papers argue that CID is risk-increasing. Internationally diversified firms face disadvantages such as more complex operating environments and potentially unfavorable taxation (*Michel & Shaked, 1986*). Multinational operations are often exposed to political risk; this can entail unfavorable government intervention, additional costs due to regulatory barriers, corruption, and expropriation (e.g., *Mahajan, 1990; Pantzalis, Park, & Sutton, 2008*). Increasing complexity in the firm's operations and real investments also leads to exacerbated agency problems. Issues such as the decreased ability of shareholders to monitor managers, information asymmetry between local firms and multinational firms, and increased managerial risk-taking are likely to increase the riskiness of multinational firms (e.g., *Kim & Mathur, 2008; Lee & Kwok, 1988; Reeb et al., 1998*). Arguably the most important source of uncertainty for multinational firms is unexpected changes in FX rates. International diversification increases the firm's FX exposure (e.g., *Olibe et al., 2008; Reeb et al., 1998*); if purchasing power parity does not hold, the value of the multinational firm measured in its domestic currency is vulnerable to FX rate changes. FX exposure can also affect the firm's ability to compete in its market (*Williamson, 2001*) and invest in future projects (*Campa, 1994*).

In testing whether the effects of CID increase or decrease equity risk, it is necessary to distinguish systematic risk from idiosyncratic risk (e.g., *Goldberg & Heflin, 1995*). I empirically test the following two related hypotheses:

**H1a.** Corporate international diversification significantly affects the systematic risk of stock returns.

<sup>4</sup> Psychic distance captures geographic distance but also includes cultural, business, and political differences – thus factors such as language, political and legal systems, and trade practices are also considered.

<sup>5</sup> The importance of geography is also emphasized by *Joliet and Hübner (2008)*. Using the psychic distance framework, the authors analyze the impact of CID on domestic and world betas and find mixed results that depend on industry and geography.

<sup>6</sup> A notable exception here is *Severn (1974)*, who studies the effects of international diversification on accounting betas. He finds that firms with greater international involvement have lower covariance of their earnings per share (EPS) with the EPS of the S&P 500 index.

<sup>7</sup> The U.S. Census Bureau estimates that in 2011, 97.8% (97.2%) of all exporting (importing) companies were small- and medium-sized firms (less than 500 employees). Their export (import) volume accounted for 33.3% (30.7%) of total export (import) value ("A profile of U.S. importing and exporting companies", 2013).

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