The Impacts of Internationalization on Performance of New Zealand Firms

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Attestation of Authorship

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

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Abstract

This dissertation analyzes the relationship between internationalization and performance of New Zealand based multinational companies (MNCs) by utilizing a more current sample of MNCs. Using concepts derived from the prior studies, I develop four hypotheses that relate impacts of internationalization on firm performance. Conditional quantile regressions indicate that firms with the highest performance might be negatively affected by depth of geographical concentration and positively influenced by breadth of internationalization. Accordingly, for firms with the highest values of Tobin's q, their market value is particularly sensitive to international expansion activities. In addition, size effects might negatively impact on firm performance.

1. Introduction

As restrictions on cross-border capital flows have been substantially alleviated and the trend of international integration has risen, more and more firms have been involved in activities of internationalization that could be defined as firms expanding their activities into overseas countries through exporting or foreign direct investment (FDI) (Hitt, Hoskisson, & Kim, 1997). FDI can be identified as at least 10% ownership of regular shares of an enterprise. Moreover, the activity of FDI mainly includes exporting capital overseas for setting up affiliates or joint venture firms, and for the purpose of merger and acquisition (Harvey & Milios, 1999).

As internationalization has been an important strategy for firms in both developing and developed countries, the relationship between internationalization and firm performance has triggered broadly interdisciplinary research. Accordingly, some theoretical perceptions and frameworks have been extended, for instance, the theory of the multinational enterprise (Gomes & Ramaswamy, 1999), an organization learning perspective (Ruigrok & Wagner, 2003), and theories of foreign direct investment (Grant, Jammine, & Thomas, 1988; Li & Rugman, 2007; Tallman & Li, 1996). Although there are a large amount of studies dealing with the internationalization-performance relation, a general consensus has not been reached, and hence, the theoretical and empirical gaps continue to bedevil researchers (Thomas & Eden, 2004). Moreover, the findings of the prior studies are heterogeneous, or even contradictory in explaining such a relationship. Those findings include different forms of relationships between the degree of

internationalization and performance: positive or negative linear relationship, U-shaped or inverted U-shaped relationship, and S-shaped relationship.

Firstly, based on the belief that firms can benefit from internationalization, some researchers contended that there is a positive and linear relationship between internationalization and firm performance (Han, Lee, & Suk, 1998; Jung, 1991; Tallman & Li, 1996). However, Brewer (1981), Kumar (1984), and Collins (1990) found a negative and linear relation. Moreover, Buckley et al. (1984) and Morck and Yeung (1991) did not find any internationalization-performance relationship.

Secondly, some scholars found a saucer-shaped or U-shaped relationship between performance of small and medium-sized enterprise and FDI (Capar & Kotabe, 2003; Ruigrok & Wagner, 2003). That is, when investigated firms initially exported FDI, the performance decreased. As the number of FDIs grew, the performance became higher. In contrast, Hitt et al. (1997) and Gomes and Ramaswamy (1999) indicated an inverted U curve, which implies the greater extent of FDI results lower performance.

More recent studies proposed the three-stage theory. That is, to integrate U-shaped and inverted U-shaped relationships, the S-shaped relationship is illustrated. Contractor et al. (2003) and Lu and Beamish (2004) argued that at the beginning of overseas expansion, performance declines because of the liability of foreignness. In the second stage, if the firm can overcome the initial difficulties and capture the investing opportunity, performance will be improved as a consequence of development of new knowledge and

competence and enhancement of competitiveness. Eventually, at very high levels of internationalization, the firm has many affiliates, which will negatively impact on firm performance. For example, the associated costs for managing the affiliates will be large at this stage, which can lower the profitability of the firm.

In most of prior empirical studies, scholars have focused on investigating multinational companies located in large regions, for instance, the United States of America, Europe and emerging markets in Asia. However, little detailed research related to smaller regions, such as New Zealand, has been undertaken. The multinational companies in small countries cannot be regarded as smaller clones of the firms in large countries, because different countries have different nature of economy. Accordingly, the findings of the prior studies concerning the companies domiciled in the large regions cannot be automatically applied to the firms in the small regions.

New Zealand has low population and limited industrial base, and hence, is a small open developed economy. In order to capture advantages of economic scale and scope, or access to unique resources, many firms domiciled and incorporated in New Zealand continue to seek new markets globally. For instance, New Zealand's total investment abroad increased from around NZD80.81 billion to NZD121.87 billion during the period from March 2003 through March 2008 (Statistics New Zealand, 2008). Furthermore, the main destinations for New Zealand's international investment continue to be Australia, the United States of America, and the United Kingdom. For example, New Zealand's investment abroad occurred in Australia, the United States of America,

and the United Kingdom with approximately NZD70.04 billion (57.47 percent) of total investment abroad at March 2008 (Statistics New Zealand, 2008). Therefore, the FDI activities of New Zealand based multinational companies were concentrated in the geographically and culturally close foreign countries.

The purpose of this research is to use the conditional quantile regression to investigate the impacts of internationalization on performance of New Zealand based multinational companies. The empirical results suggest that firms with the highest Tobin's q might be negatively affected by depth of geographical concentration and positively impacted by breadth of internationalization. This finding indicates that firms with the best performance are more sensitive to the activities of internationalization. Additionally, conditional quantile regressions detect that size effects negatively impact on firm performance at nearly all quantiles of the distribution.

The rest of this research is organized as follows: the next section reviews prior literature and summarizes the findings of the previous studies; the third section proposes four research hypotheses; the fourth section describes data, variables and the research methodology; the fifth section is devoted to discuss the results of the data analysis; the sixth section concludes the findings and implications; the final section lists the limitations of this research.

2. Literature review

The bulk of literature has empirically and theoretically studied the relationship between internationalization and firm performance. Some studies have focused on analyzing the opportunities and risks associated with diversifying internationally. However, the findings of the prior studies are varied and conflicting, and include five forms of relationships between the degree of internationalization and performance. Other studies have examined the modes of entry into host markets and focused on investigating the individual and joint impacts of exporting and FDI. In those prior studies, the terms, such as internationalization, multinationality, international diversification and international diversity, etc., have often been employed interchangeably. Similarly, this is the way in this literature review.

2.1 Opportunities and risks of internationalization:

Some prior studies have focused on analyzing the opportunities and costs associated with diversifying internationally. One stream of scholars believed that the higher the degree of internationalization, the better the performance. However, the other stream of researchers argued that there are some risks associated with international diversification. According to these studies, the internationalization strategy would not improve firm performance.

2.1.1 Opportunities (benefits):

One stream of prior studies is in broad agreement that a higher degree of internationalization positively impacts on firm performance. A core argument is that, a firm expanding internationally could capture new opportunities that are not available from its home country, and exploiting these new opportunities might lead to performance improving.

First, one of the key reasons that a firm would like to expand internationally is risk diversification. Scholars (Hamel & Prahalad, 1985; Kim, Hwang, & Burgers, 1993) pointed out that firms could benefit from their multiple national markets, because they will flexibly adapt to adverse changes in government regulations or economic environment. Additionally, according to the FDI theory and its extended theory, the real options theory, location decision could be utilized to improve flexibility of operation. If a MNC has established affiliates in many foreign regions, the firm has more flexibility to transfer its production or assets within the network and hence reduce the potential risks caused by the economic environment changes (Mello, Parsons, & Triantis, 1995). For instance, once a shock happened in a country, firms could shift their assets from this market to other markets. Because of such international flexibility, firms have more bargaining power (Thomas & Eden, 2004).

Second, the diversity of different regions exposes firms to reap knowledge-based assets (Dunning, 1993). Thomas and Eden (2004) argued and showed that a firm with

subsidiaries in more nations could be able to obtain the knowledge bases, and hence generate international organizational learning within the firm's network. Pangarkar (2008) showed that the respondents in his study indicated that learning new knowledge was a key benefit of expanding internationally.

More and more researchers have recognized that organizational learning plays an important role in improving firm performance. Learning from international knowledge will affect pace and direction of overseas expansion, and consequently affect firm performance. Further, internationalization is a gradual process through accumulating knowledge over time (Hsu & Pereira, 2006). Hsu and Pereira (2006) differentiated objective knowledge from experiential knowledge and argued experiential knowledge is more important than objective knowledge. Experience obtained from international markets could become knowledge that will be helpful to solve problems related to global operations. Eriksson et al. (1997) showed that at initial stage of entering foreign markets, firms generally improve their knowledge based on experiential knowledge developed in their home markets. Prior studies indicated that organizational learning could be promoted by internationalization (Eriksson et al., 1997; Hsu & Pereira, 2006). That is, because a firm interacts with local knowledge and is exposed to various overseas markets, its knowledge bases will be augmented. Further, by expanding into overseas markets, firms can utilize obtained knowledge to develop their skills for creating value. Consequently, if firms can manage and develop experiential knowledge, it will enhance firms' capabilities and help firms reap competitive advantages. Therefore, firm performance will be reinforced if companies engage in organizational learning

activities. Hsu and Pereira (2006) found organizational learning activities such as market and social learning activities would help firms to better perform the opportunities of internationalization.

Hsu and Pereira (2006) presented managerial implications in their study. Firstly, managers should improve key resources for grasping opportunities of internationalization. Additionally, if managers wish to achieve greater performance, they should align the relationship between internationalization and firm performance with organizational learning activities. Lastly, managers should consider a broader range of factors as the degree of internationalization increases.

Third, firms could leverage country-based differences and take advantages of profitable opportunities. For example, Thomas and Eden (2004) demonstrated that customers in different regions have different demands due to the different income levels. In higher income regions, the demand of fashionable products should be higher. Firms could shift the sales of the goods or services from low-income markets to higher income markets. If products are outmoded in high-income regions, for prolonging the life of an outmoded product line, firms can sell the product in lower income regions. Thomas and Eden (2004) pointed out that, in the theory of international trade, such benefits are called benefits from exchange as they are generated by differences of demand in different regions. Firms also could take benefit from differences in government regulations. For instance, a MNC can establish subsidiaries in countries with easier regulation, higher subsidies or lower taxes (Thomas & Eden, 2004).

Fourth, firms could have greater cost efficiencies, because internationalization offers greater opportunities to reap large economies of scale and scope. Firms diversifying internationally have the ability to integrate across different regions through standardizing products, coordinating critical resource functions, and rationalizing production (Hitt et al., 1997). According to Rumelt (1982), if there are to be economies of scope, three conditions should be satisfied: first, because of the employment of one or more core factors of production, returns to scale should be enlarged; additionally, there are transaction costs what will preclude an efficient market in related factors, forcing integration; finally, there are limitations on utilizing the essential resources by expanding the production of any single end-product. Thomas and Eden (2004) showed that, at a higher activity level, economies of scale will occur if a firm could enhance its gains through a higher output factor's specialization. Benefits from specialization could be generated by either horizontally integrated FDI or vertically integrated FDI.

2.1.2 Risks (costs):

The other stream of researchers in this area found that internationalization is not a risk-free strategy, and such a strategy might require firms to fundamentally depart from their existing practices. Therefore, as firms benefit from the opportunities depicted above, they will potentially bear high levels of risks (costs). Furthermore, those costs faced by firms will be various depending on the degrees of internationalization.

Initially, when entering a foreign market through either exporting or FDI, and if the host

market is dissimilar to their home markets, most firms face two types of challenges: the liabilities of foreignness and the liabilities of newness.

Liabilities of foreignness mean costs will be incurred as there will be significant cultural, economic and political differences between home and host markets (Zaheer, 1995). For instance, knowledge and capabilities, which a company has developed by performing in its home market, generally will not be adapted to operate in the target market. Therefore, for successfully entering a new market, a firm has to learn and then build up new knowledge bases and capabilities, and, hence, the associated costs will be increased. (Lu & Beamish, 2001)

In terms of the liabilities of newness, as a start-up, a new affiliate will encounter many challenges. Firms need to recruit and train new employees to staff new operations. Moreover, new subsidiaries should build business relationships with their stakeholders and potential customers. However, considering differences between foreign and domestic markets, the challenges described above will be compounded because of the first entry into a foreign market (Mcdougall & Oviatt, 1996). Some researchers (Benito, Tomassen, Bonache-Pérez, & Pla-Barber, 2005) pointed out that it is usually difficult for new subsidiaries to set up the legitimacy. Further, hiring local managers means firms will incur high selection, training and control costs.

To sum up, as continuously expanding into new foreign markets, the associated costs will increase for suiting to more heterogeneous economic environment and cultures. For

avoidance of the liabilities of foreignness and newness, Pangarkar (2008) found that the international activities of firms, especially small- and medium-sized firms, usually are concentrated in the geographically and culturally close foreign countries. However, as time passed, impacts of the liabilities of foreignness and newness will be alleviated because companies could learn from experience and hence improve their capabilities and knowledge.

Scholars argued that, aside from liabilities of foreignness and newness, firms should recognize other risks associated with international expansion, which will negatively affect firm performance. First of all, since the movements of foreign exchange rates are difficult to predict, all firms face the costs caused by the foreign exchange risk. Even though firms could utilize hedge strategies to reduce the risk, such strategies involve costs. Thomas and Eden (2004) pointed out that translation exposure negatively impacts on the market value of a company, foreign sales, and a company's ability to raise capital.

Moreover, internationalization incurs cross-border transaction costs. Benito et al. (2005) showed that principal transaction costs are bargaining costs, monitoring costs, bonding costs, and maladaptation costs. They also found that cultural differences between parent firms and their overseas affiliates might cause information asymmetries and the probability of speculation. Moreover, as a MNC becomes larger, it will be more intricate and more bureaucratic. All of these weaknesses will inversely affect on the operational efficiency.

In conclusion, the strategy of international diversity shows potential benefits as well as costs. How a firm exploits the benefits and avoids the associated costs will eventually impact on its performance.

2.2 Nature of the internationalization-performance relationship

Based on the different perspectives of benefits and costs, scholars illustrated various and contradictory findings including different forms of relationships between the degrees of internationalization and firm performance. Generally, there are five models of the internationalization-performance relationship: the positive and linear model; the negative and linear model; the U-shaped model; the inverted U-shaped model; and the sigmoid model. These models will be reviewed below.

2.2.1 The positive and linear model:

Based on the belief that firms can take benefits from internationalization, some scholars (Han et al., 1998; Jung, 1991; Tallman & Li, 1996) found that there is a positive and linear relationship between firm performance and internationalization. That is, as the degree of internationalization increases, firms' net profits will be increased. Gomes and Ramaswamy (1999) examined the positive and linear model and found a positive but diminishing returns model. According to Gomes and Ramaswamy (1999), the relationship between the degree of internationalization and firm performance is still positive. But, as the degree of internationalization becomes higher, a firm's net profits increase at a declining rate. All in all, this stream of scholars believed that

internationalization is good.

2.2.2 The negative and linear model:

In contrast with the positive and linear model, the negative and linear model indicates that the degree of internationalization negatively and linearly affects firms' profitability. In other words, as a firm's international activities increase, the costs of international expansion will outweigh the gains from internationalization (Kumar, 1984; Siddharthan & Lall, 1982). Therefore, the findings supporting the negative and linear relationship indicate that internationalization is a non-profit strategy and even could damage firms' capitalization.

2.2.3 The U-shaped model:

Some studies (Capar & Kotabe, 2003; Ruigrok & Wagner, 2003) found evidence supporting the U-shaped model. These researchers argued that the relationship between internationalization and firm performance is non-linear, and should be U-shaped. That is, at the beginning of international expanding, firm performance will present a downward trend. But, as the firm improves its knowledge and capabilities, it could be able to perform better and gain positive net profits eventually. According to this stream of studies, internationalization eventually is good.

2.2.4 The inverted U-shaped model:

The inverted U-shaped model has been examined by many scholars (Geringer, Beamish, & DaCosta, 1989; Gomes & Ramaswamy, 1999; Hitt et al., 1997; Ramaswamy, 1992; Sullivan, 1994). Scholars pointed out that the relationship between firm performance and internationalization should be curvilinear, and the shape like an inverted U.

The inverted U-shaped model presents that in the first phase of entering into foreign markets, the gains from exporting or FDI could cover the costs, and therefore the trend of curve should be upward. However, as the degree of internationalization increases, the net income would decline. Sullivan (1994) argued that if the geographic dispersion increases, the associated costs, such as transaction costs, will be boosted. The researcher concluded that at a high degree of internationalization, the relationship between firm performance and internationalization will show a downside trend. Also, Hitt et al. (1997) showed that international expansion will provide many opportunities, such as economies of scale and scope and access to idiosyncratic resources, and firms could benefit from these opportunities at initial international expansion. When the extent of internationalization becomes greater, firms will face increased transaction costs that are in line with Sullivan's findings.

In summary, according to these findings of the prior studies (Geringer et al., 1989; Gomes & Ramaswamy, 1999; Hitt et al., 1997; Ramaswamy, 1992; Sullivan, 1994), the performance-internationalization relationship is not linear. Moreover, the slope of the

curve initially is positive and finally is negative.

2.2.5 The sigmoid model:

To integrate U-shaped and inverted U-shaped relationships, the sigmoid model or S-shaped relationship is illustrated. The sigmoid model is considered as a more complete model to illustrate the relationship between degrees of internationalization and firm performance. Based on the sigmoid model, Contractor et al. (2003) and Lu and Beamish (2004) proposed the three-stage theory.

In the first stage, the costs associated with internationalization will outweigh benefits from expansion, and the level of internationalization is usually low. Pangarkar (2008) indicated that the international activities of firms, especially small- and medium-sized firms, usually are concentrated in the geographically and culturally close foreign countries. That is because these firms wish to alleviate liabilities of foreignness. However, if a firm enters into a foreign market that has totally different economic environment and culture the costs related with liabilities of foreignness would be large. For avoidance of such liabilities, firms need to pay large amount of costs to learn foreign market knowledge and improve their capabilities. Therefore, Contractor et al. (2003) suggested that if a MNC wishes to expand internationally, it should try to minimize the costs incurred by administrative overheads. Otherwise, the initial net profits will be negative. To sum up, at the beginning of overseas expansion, the lower degree of internationalization negatively impacts on firm performance. That is, the slope

of the relationship is negative.

The following stage is that the slope for the internationalization-performance relationship is positive. Contractor et al. (2003) pointed out that the initial costs will not be burdensome; otherwise no companies would wish to expand internationally. If the firm can overcome the initial difficulties and capture the investing opportunities, performance will be improved as a consequence of development of new knowledge and competence and enhancement of competitiveness. The degree of internationalization in this stage is higher than that in the first stage, and at a medium level. Contractor et al. (2003) argued that firms could benefit from price discrimination, arbitrage and strategic cross-subsidization as increased the number of foreign markets entered. For resource-seeking firms, they could access resources with lower cost, such as labour. Furthermore, as the degree of internationalization becomes intensive, the transfer of specialized knowledge from foreign countries will increase. Similarly, for market seeking firms, if the firms can enter more and more foreign markets, their capabilities of global scanning will be enhanced. Hence, in the second stage, the incremental gains from higher degree of internationalization are greater than the associated costs.

The third stage shows that there is a negative relationship between internationalization and firm performance because the incremental gains from further expansion into minor foreign countries are not able to cover the associated costs.

A set of studies (Geringer et al., 1989; Gomes & Ramaswamy, 1999; Hitt et al., 1997;

Ramaswamy, 1992; Sullivan, 1994) that focused on examining the inverted-U shaped model found that there is an "internationalization threshold" at which firms have achieved the peak of performance and further expansion will deteriorate firms' benefits. Therefore, performance should be a downturn as a consequence of expanding beyond an optimal threshold (or point). These scholars argued that beyond this inflection point, companies would be left with regions that presented a minor return potential since these companies have already broadened into the most profitable regions. Moreover, at a very high degree of internationalization, operation of firms will be more complex. Hence, the costs (costs of integration, management or transaction) related to complicated operation will be much higher than the gains in stage three. Additionally, if firms expand into a greater number of foreign countries, they have to deal with increased trade barriers and face more heterogeneous economic environment and cultures. Therefore, immoderate international expansion will cause increased managerial constraints and in turn lead to large information processing costs (Ruigrok, Amann, & Wagner, 2007). Ruigrok et al. (2007) examined extreme levels of internationalization. They found extreme degrees of internationalization might force companies to the "edge of chaos" that means a volatile and unforeseen situation of ambiguity and disorder.

As has been shown, expanding into foreign markets beyond the optimum point will be detrimental to firm performance. But, why do many firms over-expand? Ruigrok at el. (2007) presented the possible explanations. Firstly, firms generally do not know where the internationalization threshold is since it is very hard to predict. Secondly, managers will simply replicate the international diversification modes of other firms that are at

very high degrees of internationalization but still gain positive net profits. Moreover, considering the conflict of interests, these scholars believed that managers prefer high degrees of internationalization beyond the optimum point because these managers are motivated by their own benefits. Lastly, based on the belief that firms would benefit in the long term, managers might purposely over expand internationally for long run strategy.

All in all, the five models of the internationalization-performance relationship depicted above present different standpoints on international diversification. Some of the scholars simply believed that the strategy of diversifying internationally would positively or negatively impact on firm performance. Others argued that at different degrees of internationalization, firm performance should be different. Further, the three-strategy theory has been considered as the more complete model to demonstrate the relationship between internationalization and firm performance.

2.3 Potential explanations of the conflicting findings

Why did the prior studies present mixed results? One of possible explanations proposed by Thomas and Eden (2004) is that some of prior scholars overlooked the temporal dimension. Moreover, Pangarkar (2008) concluded that lacking standardization in measures and the narrowness of measures might cause those mixed findings. Further, some researchers neglected the impacts of scope of internationalization.

Firstly, Thomas and Eden (2004) pointed out that ignoring the temporal dimension

might be one of the potential reasons for mixed results. They argued the results of performance should be different in the short run versus the long run. For example, many studies showed that companies with larger advertising and R&D expenditures would present a lower performance in the short term due to the costs that are incurred in advance of gains. The expected gains from investing in such intangible assets are generally presented in long-term performance. Additionally, Thomas and Eden (2004) argued that first movers would benefit from expanding into foreign markets more than latecomers, because the first entrants, potentially, could access more resources and gain more shares of international markets, and hence perform better than later entrants.

Additionally, Pangarkar (2008) argued that lacking uniformity in measures and the narrowness of measures might cause those inconsistent results. When scholars examined the relationship between the degrees of internationalization and firm performance, the key dependent variable was firm performance, and the key independent variable was the degrees of internationalization.

With regard to the key dependent variable (firm performance), prior literature has utilized a wide range of performance measures including three types of data: outcomes realized in the product market (such as total sales, etc.), accounting-based data (such as return on equity, return on assets, and after-tax return on sales, etc.), and market-base data (such as average market value and the risk-adjusted return, etc.). Thomas and Eden (2004) argued the accounting-based measures are focused on the past performance, whereas the market-based measures are future oriented. Moreover, the scholars pointed

out that accounting-based data might be distorted in short term. If this were the case, Thomas and Eden (2004) believed that market-based performance presents more highly inter-correlated and greater consistence.

Although prior literature, collectively, considered an extensive range of performance measures, individual researchers, usually, tested either one or two narrow measures. Goerzen and Beamish (2003) argued that the narrow measures will not be able to entirely present firm performance, especially when the firm has a broad objective function.

With regard to the key independent variable (degrees of internationalization), scholars who considered internationalization as an important growth strategy examined internationalization from two standpoints: breadth (scope) and depth. Breadth of internationalization refers to the number of foreign countries in which a firm's subsidiaries are located. Depth means a large percentage of subsidiaries are established in a few foreign countries or foreign sales as a proportion of total sales (FSTS) (Allen & Pantzalis, 1996; Lee, Chan, Yeh, & Chan, 2008).

However, most scholars utilized a uniform measure, which is FSTS, to characterize the degrees of internationalization. Pangarkar (2008) pointed out that FSTS lacks validity and this measure ignores the geographic dispersions or country scope. Moreover, Thomas and Eden (2004) argued that breath could be more important for firm performance than depth. Both Allen and Pantzalis (1996) and Lee et al. (2008) found

that breadth could increase the profitability of a firm; whereas, depth could not improve the firm performance. Qian and Li (2002) indicated the greater or lesser breadth of internationalization might possibly result in a decline in performance, and hence suggested firms which plan to expand internationally should combine the strategies of geographic scale and scope of foreign operations.

To sum up, some researchers did not consider the time dimension and therefore undervalued firm performance in the long term. Moreover, with regard to the dependent variable, the measures utilized in some prior studies lack uniformity and narrowness; with regard to the key independent variable, most researchers only tested the depth of internationalization but neglected the breadth of that. Therefore, it is not surprising that prior studies presented varied findings.

2.4 Two avenues of internationalization: exporting and FDI

As the most prominent approach to international diversification, many studies focused on examining the individual and joint impacts of exporting and FDI (Granstrand, Håkansson, & Sjölander, 1993; Grant et al., 1988; Hennart, 1982; Kogut, 1985; Lu & Beamish, 2001, 2006; Ramaswamy, 1992; Root & Visudtibhan, 1994; Shan & Song, 1997; Zahra, Ireland, & Hitt, 2000).

2.4.1 Exporting

Lu and Beamish (2006) argued that many firms consider exporting as the first step to

enter global markets. This strategy is regarded as a platform for further international expansions. Compared to FDI, exporting has several merits. Exporting is a comparatively fast and easy avenue to enter international markets since it incurs relatively low levels of risk and commitments (Lu & Beamish, 2006).

First, through exporting to enter foreign markets, a firm does not need to deal with the complications of setting up foreign affiliates. Additionally, since a firm is able to utilize the existing manufacture facilities to supply its foreign markets rather than establish new manufacture facilities in overseas markets, a firm could relatively faster enter foreign markets through exporting (Kogut, 1985). Meanwhile, exporting is less risky than FDI because a firm could easily withdraw from a foreign market when the host country's government is instable, or its economic environment is going to be worse. Lastly, one of the explanations why many firms prefer the exporting strategy to the FDI strategy is that exporting presents more flexibility. Companies can simply adjust the degree of internationalization by changing their export volumes in different target overseas markets. Lu and Beamish (2001, 2006) argued that those unique merits of exporting are particularly important for small- and medium-sized enterprises since these enterprises generally face more limitations of resources, and are unable to make immoderate commitments, and bear higher investment risks compared to large enterprises.

The contribution of exporting to firm growth via increasing foreign sales is intelligible. Through exporting, a company could expand its consumer base and possibly realize a

high volume of sales. If the sales volume could be enhanced, a firm could potentially expand its production capacity and, in turn, might obtain more shares of international markets. Therefore, when firms, especially small- and medium-sized firms, would like to broaden markets and generate room for international expansion, export is a vital approach for firm growth. (Lu & Beamish, 2006)

Moreover, since it is possible that sales and production volume could be increased through exporting, companies might gain economies of scope and scale, and as a result, management efficiency and productivity of labour could be improved, which will directly lead to cost savings (Grant et al., 1988; Kogut, 1985). In addition, Ramaswamy (1992) indicated that the market power and benefits from the diversification will be increased due to the presence in various foreign markets.

In conclusion, many prior studies concluded that exporting could increase both firm profits and growth, and offer opportunities of learning diverse countries' knowledge and, hence, improving firms' capabilities. Lu and Beamish (2006) agreed that exporting indeed is an efficient firm growth strategy; however, the contribution of exporting strategy to firm performance is weakened. During the period of domestic currency appreciation, exporting would negatively impact on firm profitability. Therefore, Lu and Beamish (2006) suggested that firms should be conscious that gains from exporting are sensitive to the movements of foreign exchange rates, and therefore, firms should adjust the exporting strategies when domestic currency fluctuates.

Lu and Beamish (2006) pointed out some disadvantages associated with exporting. Firstly, for some particular goods, such as soft drinks, there is the high ratio of volume to value that will incur significant transporting costs for exporting such products. Secondly, exporting is exposed to imperfections of trade systems across foreign countries. For instance, various tariff regimes can significantly affect the net profits reaped from exporting. Furthermore, if firms sell their products through export agents to consumers in foreign markets, the firms will face distributor opportunism, because the interests of export agents might be conflicted with the firms' interests. Lastly, for successfully expanding into international markets, a firm needs to have its competitive advantages that usually indicate intangible and proprietary assets. However, expanding internationally through exporting will expose companies to asset appropriation risks. In turn, the value of intangible assets will be devaluated.

2.4.2 FDI

As shown above, although the exporting strategy presents many advantages, the strategy is not perfect. As a consequence, alternative approaches to internationalization exist, such as FDI.

Hennart (1982) argued that by setting up affiliates in overseas markets, FDI enables firms to reduce transaction costs and benefit from internationalization. First of all, through FDI, firms' customer bases will be expanded. Consequently, firms could enlarge their sales volume and, thereby, production volume. Lu and Beamish (2006)

presented there is a unique feature of FDI that is firms could get potential feedback learning. FDI not only provides firms with opportunities to improve knowledge about the host market through foreign subsidiaries but also offers firms the chance to gain from a variety of location-based advantages (Kogut, 1985). For instance, through FDI, firms could reap a broader range of technological and scientific knowledge and skills, which will improve firms' technological capabilities (Granstrand et al., 1993). Therefore, FDI positively impacts on firms' growth not only in terms of increasing volume of production, but also in terms of improving their capabilities and knowledge. Lu and Beamish (2006) found that there is a positive relationship between FDI and firm growth.

Prior studies found a U-shaped relationship between the level of FDI and firm performance. When first entering a foreign market through FDI, a MNC will compete with local companies. Those local companies know how to operate their business in the host market, and have better local relationships at all levels. However, foreign affiliates will face several disadvantages in terms of local relationship and knowledge. The intrinsic deficiency of firms, especially small- and medium-sized firms, will enlarge the negative influence of the liabilities of foreignness and newness (Zahra et al., 2000). Consequently, in the first phase of operating affiliates in host countries, firms are easy to make mistakes. For example, at the first stage of international expansion, firms might find an improper local business partner, or have problems in hiring and retaining good local employees. The costs caused by those mistakes might offset the possible gains from FDI, and thereby, reduce the net profit of firms. That is, in the initial stage of

entering foreign markets, firm performance is negatively related to FDI (Shan & Song, 1997). However, Lu and Beamish (2006) pointed out that firms could gain experience from their mistakes, and then develop their knowledge and capabilities via FDI. As a result, the impacts of liabilities of foreignness and newness could be avoided, and finally, the gains from FDI might overcome such liabilities. That is, firms' net profit might be positive. In summary, in the initial stage of entering foreign markets via FDI, firm performance might be poor because the costs are higher than the benefits. But, as the level of FDI becomes higher, firm performance becomes better and net profits should be positive (Lu & Beamish, 2006).

2.4.3 Interplay of exporting and FDI

While the exporting strategy and the FDI strategy are two obviously different avenues of internationalization, they are not exclusive (Lu & Beamish, 2001). It is in fact the case that firms generally utilize both exporting and FDI strategies.

Small- and medium-sized firms usually begin with exporting because these firms typically have restricted financial bases and thereby could not make FDIs when they initially plan to expand into overseas markets (Zahra, Neubaum, & Huse, 1997). However, as small- and medium-sized firms grow, the initial restrictions in capabilities and resources will be mitigated. Therefore, the exporting strategy could help firms to accumulate their capitalization that is essential for making FDIs. Moreover, through exporting, firms could develop their international knowledge that, in turn, will enrich

their international experience. Further, firms could establish relationships with foreign consumers in international markets.

Therefore, a number of scholars (Lu & Beamish, 2006; Root & Visudtibhan, 1994; Shoham, 1998) argued that since exporting strategies could help firms to improve the capabilities and resources required for a further degree of internationalization, increased exporting activities would have a positive moderating impact on the relationship between firm growth and FDI.

As the degree of exporting becomes extensive, it is difficult to realize a high level of FDI at the same time. The implementation difficulties consist in different requirements that the exporting or FDI strategy enforces on a company's capabilities of management and organization structures (Root & Visudtibhan, 1994).

If firms wish to pursue the gains from exporting, it requires to centralize both decision-making and production, and thereby, to maximize efficiency of operation. But, this mode of operation that is crucial to high degrees of exporting might hamper the gains obtained from FDI. As firms set up more and more affiliates in other nations, and because the international markets present heterogeneous economic environment and cultures, managers of overseas affiliates need more flexibility when they make decisions.

Additionally, compared to management capabilities required by exporting activities, FDI strategies require that managers have more sophisticated management skills to

handle complex international issues. These skills will include the requirement to manipulate a larger labour force and various components of the value chain (Lu & Beamish, 2006).

Therefore, at a high degree of exporting, it is hard to reap the full prospective gains from increased FDI actions. Additionally, different operation requirements will imply that when both exporting and FDI activities are at a higher level, it is too intricate to coordinate those activities. In conclusion, a higher level of exporting will have a negative moderating impact on firm performance motivated by FDIs (Lu & Beamish, 2006).

To sum up, scholars suggested that both exporting and FDI would positively impact a firm's growth, but show different impacts on firm performance. When a firm utilizes both avenues to expand internationally, at high levels of internationalization, exporting would negatively affect on performance improved by FDI.

2.5 Conclusion

Prior studies investigated how the degrees of internationalization impact on firm performance. Based on different standpoints, different models are proposed. One line of prior studies pointed out that the strategy of internationalization provides numerous opportunities or benefits that would lead to firm performance improving. Another line of research argued that the strategy of international diversity presents potential risks that would increase costs. Moreover, some studies found that the relationship between

internationalization and firm performance should be U-shaped or inverted U-shaped. In recent studies, scholars regarded the sigmoid model as the most complete model to illustrate the linkage between degrees of internationalization and firm performance. One of possible explanations of the conflicting findings is that researchers neglected the time dimension. The other explanation is that some scholars utilized uniformity and narrowness of measures when examining firm performance. Further, most prior studies only focused on testing depth but ignored breadth when concerning degrees of internationalization. However, some studies examined and concluded that breadth of internationalization affects firm performance as well.

Aside from examining the benefits and costs of internationalization, some scholars focused on investigating the impacts of exporting and FDI. Firstly, prior studies suggested that exporting could enhance firm growth through increasing foreign sales. Moreover, FDIs positively relate to firm performance. Lastly, if a firm expands into overseas markets through both exporting and FDI, at the high degree of internationalization, exporting negatively affects firm performance, but FDI positively impacts firm performance.

Furthermore, most of scholars focused on examining the MNCs located in large developed or developing regions, such as the United States of America, Europe, or emerging markets in Asia. However, little detailed research on small countries, such as New Zealand, has been undertaken. New Zealand is a long-standing member of the Organization for Economic Cooperation and Development (OECD), the International

Monetary Fund (IMF) and the International Bank for Reconstruction and Development (World Bank) (Statistics New Zealand, 2008). Moreover, New Zealand has low population and limited industrial base. Consequently, the strategy of operating internationally is generally more important for MNCs domiciled in New Zealand than those domiciled in large countries. Therefore, my paper follows Lee at al. (2008) to investigate how degrees of internationalization (i.e. breadth and depth) impact performance of the New Zealand based MNCs. The developed hypotheses are proposed in the following section.

3. Hypothesis development

Thomas and Eden (2004) pointed out that there are three key components to internationalization. The first key component is penetration of foreign market, which indicates the dependence of a MNC on overseas markets. The second one is presence of foreign market, which presents a MNC's production presence across foreign countries. The third one is country scope, which means in how many foreign countries a firm sets up subsidiaries. The first two key factors, penetration and presence of foreign market, demonstrate geographic scale or depth of internationalization. The last factor represents geographic scope or breadth of internationalization. MNCs engage in activities of internationalization through expanding both depth and breadth of foreign operations for establishing a multinational network.

Kogut (1985) argued that, as a result of a multinational network, a MNC is able to have more bargain power and gain increased operating flexibility. For instance, a MNC is able to transfer its tangible and intangible assets across geographic areas if an adverse event happened in a region. Moreover, a MNC can yield advantages of economic scale and scope by expanding internationally. Furthermore, a MNC can utilize differences in the factor and goods markets across foreign countries. The aforementioned benefits or opportunities are principally determined by breadth of internationalization, and hence, breadth can enhance value of a MNC. By contrast, depth of internationalization presents a value-reducing effect of international diversification (Allen & Pantzalis, 1996). Allen and Pantzalis (1996) argued that if the foreign subsidiaries of a MNC are centralized in

a few foreign countries, the operating flexibility will be decreased, and the agency costs will occur. Some scholars (Allen & Pantzalis, 1996; Lee et al., 2008) suggested that breadth of internationalization will enhance firm performance, but depth will negatively impact on firm performance.

The purpose of this paper is to investigate how degrees of internationalization (i.e. breadth and depth) affect performance of New Zealand owned multinational enterprises. In this paper, I expect that New Zealand owned multinational enterprises should have higher performance since those firms have foreign subsidiaries in more foreign countries. Moreover, effects of breath on firm performance should be enhanced as the quantiles of firm performance distribution increase. Correspondingly, I expect that multinational enterprises which centralize their foreign subsidiaries in a few foreign markets should have lower performance. That is, the depth negatively affects performance of a firm. Furthermore, if quantiles of firm performance distribution increase, the effects decline.

Therefore, the main hypotheses are as follows:

H1A: For all quantiles, the coefficients of depth are significantly negative in the conditional distribution of firm performance;

H1B: Magnitude of coefficients of depth decreases from lower quantiles to upper quantiles in the conditional distribution of firm performance;

H2A: For all quantiles, the coefficients of breadth are significantly positive in the

conditional distribution of firm performance;

H2B: Magnitude of coefficients of breadth increases from lower quantiles to upper quantiles in the conditional distribution of firm performance.

4. Methodology

4.1 Data description

Data used for this paper are primarily collected from three sources: NZX's Deep Archive, Factiva and Thomson Financial DataStream. Moreover, the sample covers the 5-year period from 2004 to 2008. Since this paper follows works of Allen and Pantzalis (1996) and Lee et al. (2008) using depth and breadth as measures of internationalization, multinational companies that have foreign subsidiaries are considered as sample firms. There are three criteria used to collect sample firms:

1) The firms are domiciled and incorporated in New Zealand;

2) The firms have registered under the Companies Act 1993 and are listed on the New Zealand Stock Exchange;

3) These multinational companies have established subsidiaries in an overseas country (or countries) and have at least 10% share of any subsidiary.

Firstly, I download annual reports from NZX's Deep Archive. After reading annual reports for the year 2008, 53 firms are initially identified as sample companies. Internationalization measures, breadth and depth, are hand-collected from annual reports of each multinational company for the period from 2004 to 2008. Moreover, I use NZX's Deep Archive, Factiva and Thomson Financial DataStream to collect other required financial data. Lastly, I exclude multinational companies without an unabridged record including a set of accounting items, which contain short-term assets

(or current assets), long-term debt (or non-current liabilities), short-term debt (or current liabilities), total assets, sales, book value of preferred stock, research and development expenditure, net income, and general administrative expenses. These accounting items are used for constructing variables to proxy the hypothesized determinants of firm performance. As Figure 1 (Appendices) shows, 41 multinational companies are finally identified as samples in my research. As a result, the total sample size should be 205.

4.2 The models and variables description

4.2.1 Models

As per the equation utilized by Allen and Pantzalis (1996) and Lee et al. (2008) in their studies, the model of profitability of a transnational corporation is shown as follows:

$$\text{Tobin's q} = \beta_0 + \beta_1 Breadth + \beta_2 Depth + \beta_3 RDI + \beta_4 AD + \beta_5 DEBT + \beta_6 Size + \sum \beta_j IND + \varepsilon$$

First, I perform a correlation analysis to check whether the predictor variables present any noteworthy problem of multicollinearity. As Table 1 (Panel A) shows, some variables have significant correlations, such as the correlation coefficient between Depth and Breadth, which is -0.8497. Further, I perform the variance inflation factor (VIF) to ensure multicollinearity will not lead to errors in the estimations. Table 1 (Panel B) shows that the VIF value for Breadth is greater than 10 indicating that multicollinearity is a major problem. Therefore, one variable, Breadth or Depth, should be dropped. Accordingly, I split the above model into two models presented as follows:

$$Tobin's\ q^a = \beta_0^a + \beta_1^a Depth + \beta_2^a RDI + \beta_3^a AD + \beta_4^a DEBT + \beta_5^a Size + \sum \beta_j^a IND + \varepsilon^a \quad \text{(a)}$$

$$Tobin's\ q^b = \beta_0^b + \beta_1^b Breadth + \beta_2^b RDI + \beta_3^b AD + \beta_4^b DEBT + \beta_5^b Size + \sum \beta_j^b IND + \varepsilon^b \quad \text{(b)}$$

As per Table 1 (Panel C and D), the VIF values are all less than 10, which indicates that multicollinearity is not an issue in both model (a) and model (b).

Table 1: Correlation Matrix and Variance Inflation Factors

Panel A	Tobin's q	Depth	Breadth	AD	RDI	DEBT	Size
Tobin's q	1						
Depth	-0.0811	1					
Breadth	-0.0041	-0.8497	1				
AD	0.6551	0.0358	-0.0348	1			
RDI	0.6939	0.0519	-0.0556	0.6901	1		
DEBT	-0.168	-0.1137	0.2344	-0.0364	-0.0831	1	
Size	-0.3466	-0.2508	0.4089	-0.1119	-0.1416	0.5017	1

Panel B	VIF	1/VIF
Breadth	10.84	0.09
Depth	7.28	0.14
AD	7.73	0.13
RDI	7.36	0.14
DEBT	1.80	0.56
Size	2.55	0.39

Panel C	VIF	1/VIF
Depth	1.80	0.56
AD	7.47	0.13
RDI	7.16	0.14
DEBT	1.79	0.56
Size	2.33	0.43

Panel D	VIF	1/VIF
Breadth	2.68	0.37
AD	7.61	0.13
RDI	7.26	0.14
DEBT	1.80	0.56
Size	2.40	0.42

4.2.2 Dependent variable - firm performance

Thomas and Eden (2004) pointed out that firm performance can be conceptualized from two dimensions: short-run financial performance and long-run expected market performance. The first dimension utilizing solely accounting based measures includes return on equity, return on assets and return on sales, etc. The second dimension, which is market-based, includes excess market value and average market value. Palich et al. (2000) argued that market-based measures could have greater consistency, because these measures would not be affected by managerial manipulations, which could result in short-term distortion represented in accounting-based measures. Moreover, unlike short-run financial performance, which is past oriented, long-run expected market performance focuses on future profitability (Hoskisson, Johanson, & Moesel, 1993). In this sense, the market-based measurement can better capture the prospective gains from internationalization than does the accounting-based measurement. Therefore, in my paper, I use excess market value (Tobin's q) as a measure of MNC performance and follow the approach of Lee et al. (2008) to calculate Tobin's q.

The equation of Tobin's q (Lee et al., 2008) is presented as follow:

$$\text{Tobin's q} = \frac{\text{MV(E)} + \text{PS} + \text{BV(D)}}{\text{Total Assets}}$$

where MV(E) denotes market value of equity; PS denotes book value of preferred stock; and BV(D) represents book value of debt minus short-term assets.

4.2.3 Independent variable - degree of internationalization

Degree of internationalization is the key explanatory variable, and in this paper, two

measurements are employed to represent this independent variable: depth and breadth. The number of foreign countries in which a MNC has set up subsidiaries and the number of foreign subsidiaries concentrated in a few foreign countries provide a good representation of a MNC's global network structure. Therefore, in some prior studies these two factors are used to compose breadth and depth, respectively (Allen & Pantzalis, 1996; Lee et al., 2008).

Breadth is measured by the total number of foreign countries that span a firm's foreign affiliate network. Unlike prior studies, which usually utilized the foreign sales as a proportion of total sales or the foreign assets as a proportion of total assets to measure depth of internationalization, this paper considers concentration of a MNC's foreign affiliates in particular countries as depth (Lee et al., 2008), which is shown as follows:

$$Depth = \frac{\text{Number of foreign subsidiaries in the top two foreign countries}}{\text{Total number of foreign subsidiaries}}$$

4.2.4 Control variables

For further testing the relationship between internationalization and firm performance, most of prior studies mentioned in the "Literature Review" section employed additional control variables, such as R&D intensity, leverage, industry effect and firm size, etc.

Consistent with prior research, both models (a) and (b) include some control variables that likely impact on firm performance. The first one is research and development (R&D) intensity (RDI) measured by a firm's R&D expenditure divided by sales (Allen & Pantzalis, 1996; Delios & Beamish, 1999; Lee et al., 2008; Lu & Beamish, 2001). RDI might either negatively or positively impact on firm performance. On the one hand, managers would be unwilling to invest in R&D projects since such projects present high

failure rates and do not generate short-term returns (Hsu & Boggs, 2003). Therefore, R&D expenditure would decrease the net income of a MNC in the short run. On the other hand, Hsu and Boggs (2003) argued that a profitable and successful firm would like to invest largely in R&D projects. According to Hsu and Boggs (2003), RDI is an important determinant of firm performance.

The second control variable is the general and administrative expenses to sales ratio (AD). Many scholars utilized advertising intensity, as a proxy for marketing assets, measured by a MNC's advertising expenses to sales ratio. Unfortunately, despite my best effort, I could not obtain data on advertising expenditure; fortunately, I am able to obtain data on general and administrative expenses. Firstly, general and administrative expenses tend to be one of the largest of a firm's operating expenses unless the firm is very R&D focused. For instance, most of sample firms (Appendices: Figure 1) did not invest largely in R&S projects during the period from 2004 to 2008. Therefore, general and administrative expenses were one of the largest operating costs. Secondly, Thomas and Eden (2004) suggested that general and administrative expense as percent of sales can be considered as a proxy for resources resulting from brand loyalty and marketing expertise. Moreover, they argued that general and administrative expenses can be considered as a proxy for the fixed costs arising from a MNC's international expansion. For example, at initial international expansion, the costs incurred by administrative overheads will increase. However, if economies of scale exist, general and administrative expenses should be decreased as the volume of sales grows. To sum up, general and administrative expenses will impact on a firm's profitability. In accordance with Thomas and Eden (2004), I use the general and administrative expenses to sales ratio (AD) as one of the control variables.

The third control variable is leverage, measured by the ratio of long-term debt to total

assets (DEBT) (Grant et al., 1988; Lee et al., 2008; Tallman & Li, 1996). I use DEBT because it is in broad agreement that the capital structure may affect the agency costs and hence impact firm performance. Therefore the capital structure of a firm would play an important role in influencing firm performance. For instance, a firm may benefit from tax shield because of higher leverage. However the higher leverage ratio will incur bankruptcy risks. Hence, the leverage ratio may impact on firm performance.

The fourth one is firm size, which is measured by the natural logarithm of total assets (Lee et al., 2008), and it is a common variable related to performance. Jung (1991) argued that firm size significantly impacts on firm performance. For example, a large-scale firm usually has monopolistic power since the firm is able to raise funds at lower costs and can diversify its risks easily. Moreover, Hsu and Boggs (2003) indicated that size of a firm is closely related with its activities of global expansion.

The last control variable in my paper is industry effect that is measured by a set of industry dummies (IND): Agriculture and Fishing, Building Materials and Construction, Consumer, Energy, Finance and Other Services, Food, Forestry and Forest Products, Intermediate and Durables, Investment, Leisure and Tourism, Media and Communications, Property, and Transport. I have omitted one industry sector: Mining.

To sum up, the model used for testing the relationship between internationalization and firm performance includes one dependent variable (Tobin's q), two key independent variables (breadth and depth), five control variables (RDI, AD, DEBT, Size and IND), and an error term.

4.3 Method: quantile regression

Regression analysis is utilized to expose the relationship between a dependent variable,

which is also known as response variable, and some independent variables, which are also called predictor variables or explanatory variables. In real applications, a dependent variable is not able to be explained precisely by independent variables. Therefore, measures of central tendency, which are mode, mean and median, are used to summarize the behaviour of the response variable for the predictor variables. Firstly, mode is least used and can be defined as the most frequently-occurred value. In contrast, mean is broadly employed and can be defined as the sum of data values divided by the total number of data values. For example, traditional regression analysis, such as ordinary least squares model (OLS), usually uses the mean function. That is, the relationship between the dependent variable and independent variables can be summarized by illustrating the mean of the dependent variable for every independent variable. The last measure of central tendency is median, also called a middle value or 0.5th quantile, that splits the data into two segments; and each segment has the same number of data. The least absolute deviation model (LAD), which is a special case of quantile regression, is focused on the median function (Yu, Lu, & Stander, 2003).

Many prior studies utilized the OLS method to examine the relationship between internationalization and firm performance. However, when using the OLS methodology to examine impacts of internationalization on firm performance, the findings only could present the average marginal effect of the independent variables on the average firm performance. In other words, the OLS regression is likely to produce biased estimates, and so it gives an inadequate picture of the relationship. If this were the case, one might conceal important features of the underlying relationship (Coad & Rao, 2006). By contrast, quantile regression techniques focus on illustrating the whole conditional distribution of the performance variable, and hence, are able to provide a more adequate picture of the underlying relationship between internationalization and firm

performance. Moreover, since the values for Tobin's q follow a skewed distribution (as shown in Table 2), the standard OLS regression that assumes normally distributed errors does not hold for the database. However, the quantile regression results are robust to outliers and heavy-tailed distributions (Coad & Rao, 2006).

Quantile regression was introduced by Koenker and Basset (1978) and models conditional quantiles as functions of independent variables. It is a natural extension of the linear-regression models. Just as linear-regression techniques that focus on minimizing sums of squared residuals for an approximation to the conditional mean function, quantile regression techniques are used to minimize asymmetrically weighted absolute errors and enable one to estimate models for a full range of the conditional quantile functions (Koenker & Xiao, 2002). The quantile conception includes specific terms, such as median, quartiles, quintiles, deciles, and percentiles (Yu et al., 2003). As mentioned above, median divides the population into two parts with equal number of the population in each part; the quartiles split the population into four segments; the quintiles split data into five segments; the deciles split data into ten groups; and the percentiles are synonymous with quantiles that relate to the general case. For example, 0.25th percentile and 0.75th percentile are values that divide the population into proportions of one quarter and three quarters, and vice versa.

Let $(y_i, x_i), i = 1,..., n,$ be a sample from population. Then a linear regression can be written as follows:

$$y_i = x_i^{'}\beta_\theta + e_i$$

where y_i denotes performance (or Tobin's q) of firm i; x_i can be defined as a $(K \times 1)$ vector of explanatory variables (i.e. Breadth, Depth, or RD, etc.); β_θ is an unknown

vector of regression parameters associated with the θth quantile of the conditional distribution of y_i ; e_i is an unknown error term. The θth conditional quantile regression function is:

$$Quant_\theta\langle y_i \,|\, x_i\rangle = x_i^{'}\beta_\theta ,$$

where $Quant_\theta\langle y_i \,|\, x_i\rangle$ denotes the θth conditional quantile of y_i on the explanatory variables vector x_i. The condition of this function is that it assumes $Quant_\theta\langle e_i \,|\, x_i\rangle = 0$. That is, the θth conditional quantile of the error is zero. Therefore, the quantile regression parameter can be obtained from the following equation:

$$\hat{\beta}_\theta = \underset{\beta_\theta}{Min}\frac{1}{n}\left\{\sum_{y_i \geq x_i^{'}\beta_\theta}\theta\left|y_i - x_i^{'}\beta_\theta\right| + \sum_{y_i \pi x_i^{'}\beta_\theta}(1-\theta)\left|y_i - x_i^{'}\beta_\theta\right|\right\}.$$

The above equation presents that for getting the quantile regression estimator, one can minimize a weighted sum of absolute residuals with weight θ on positive errors and weight $(1-\theta)$ on negative errors. In the case of median quantile regression, the weight θ is equal to $(1-\theta)$, and then the above equation can be written as:

$$\hat{\beta}_{0.5} = \underset{\beta_{0.5}}{Min}\frac{1}{n}\sum_{i=1}\left|y_i - x_i^{'}\beta_\theta\right|$$

According to the works of Coad and Rao (2006) and Lee et al. (2008), there are some merits of using the conditional quantile regression. The first merit is that one can obtain multiple vectors of regressors in depth and breadth associated with various quantiles of the conditional distribution of firm performance. Hence, the quantile regression technique offers a more nuanced view of the relationship between degrees of internationalization and firm performance. Another merit is that the quantile regression

method provides an alternative way to estimate standard errors and hence escapes the restrictive assumption that the distribution of errors is homoscedastic at any point of the conditional distribution. Further, the quantile regression technique is robust to the presence of outliers and avoids truncation bias.

In this paper, I use nine different quantiles (θ: from 0.1 to 0.9) to illustrate the quantile regression results. Simultaneously, the OLS results have been presented for comparing the quantile regression results. I investigate how the coefficients of both breadth and depth are related with Tobin's Q in both quantile regression and OLS models.

The paper uses the bootstrap method that is a popular way for estimating the covariance matrix. The basic idea behind this method is to create new samples by sampling with replacement from the underlying population (Johnson, 2001). In this paper, the sample is a typical panel data set which includes observations on 41 firms across 5 years. The standard errors for the estimated coefficients are obtained by using 1,000 bootstrap replications.

OLS regressions and quantile regressions can be implemented with STATA 10 by employing “reg” and “sqreg” procedures, respectively.

4.4 Summary statistics

Table 2 summarizes the descriptive statistics for the variables. Moreover Figure 2 (Appendices) graphically illustrates the mean and values associated with different quantiles (1^{st}, 5^{th}, 10^{th}, 25^{th}, 50^{th}, 75^{th}, 90^{th} and 99^{th} quantiles) for each variable.

First of all, as per Table 2, the number of observations for each variable is 205. Secondly, since skewness is a measure of the lack of symmetry, any symmetric data should have

skewness near zero. However, the values of skewness for all variables are much different from zero. For instance, the values of skewness for Tobin's q, Breadth, RDI, AD and DEBT are positive, which indicates the data are skewed right. In contrast, the values of skewness for both Depth and Size are negative, which means the data are skewed left. Thirdly, Kurtosis is a measure of whether the data is flat or peaked relative to a normal distribution. Tobin's q, RDI and AD have rather high values of kurtosis that represent peaked distributions. Moreover, the values of kurtosis for both Depth and Breadth are higher than 3, which indicate the data are peaked relative to a normal distribution. Fourthly, the mean value and values associated with different quantiles are presented in Table 2. Since all data do not show normal distributions, the mean values are significantly different from the median values for all variables. For example, the mean of Tobin's q is 2.4947, whereas its median value is 0.98. Moreover, the values in the lower quantiles are logically smaller than that in the upper quantiles. For instance, firms belonging to the 1st quantile present the smallest Tobin's q that is -0.05 on average. In contrast, in the 99th quantile, firms have the largest Tobin's q and the average value is 35.47.

To sum up, the dependent variable, Tobin's q, is approximately equal to 2.4947 on average. Moreover, on average, the two key independent variables, Depth and Breadth, are equal to 0.8707 and 2.8244, respectively. That is, each firm has around 87% concentration in its internationalization effort and approximately 2.8 foreign countries as its trade partners. The dependent variable and independent variables have large values for both skewness and kurtosis, and therefore, they show either left or right skewed distributions. More, those distributions are peaked relative to normal distributions. Therefore, the distributions of all variables do not conform to normal distributions.

Table 2: Descriptive Statistics of Variables

Variables	Mean	1st	5th	10th	25th	Median	75th	90th	95th	99th	Standard Deviation	Skewness	Kurtosis	Observations
Tobin's q	2.4947	-0.05	0.16	0.30	0.61	0.98	1.76	3.29	5.11	35.47	8.7721	8.3043	75.6418	205
Depth	0.8707	0.33	0.47	0.57	0.75	1.00	1.00	1.00	1.00	1.00	0.1840	-1.2793	3.5801	205
Breadth	2.8244	1.00	1.00	1.00	1.00	2.00	4.00	6.00	7.00	11.00	2.4552	2.1181	9.1339	205
RDI	0.0768	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.07	0.28	0.9193	14.1637	202.0661	205
AD	0.2516	0.00	0.00	0.01	0.03	0.14	0.28	0.50	0.78	1.41	0.5974	10.4686	132.0489	205
DEBT	0.1687	0.00	0.00	0.00	0.01	0.13	0.26	0.42	0.46	0.66	0.1658	0.8283	3.1413	205
Size	5.1503	2.91	3.63	3.74	4.49	5.31	5.79	6.37	6.69	6.87	0.9650	-0.3441	2.5996	205

5. Results and discussion

Tables 3(a) and 3(b) report pooled simultaneous quantile regressions of 5-year Tobin's q to firm-specific factors and industry-dummies. First, independent variables included in Table 3(a) are Depth, RDI, AD, DEBT and Size. More, independent variables included in Table 3(b) are Breadth, RDI, AD, DEBT and Size. Second, coefficients with the corresponding p-values in brackets are reported for the 10^{th}, 20^{th}, 30^{th}, 40^{th}, 50^{th}, 60^{th}, 70^{th}, 80^{th} and 90^{th} quantiles. Third, the quantile regression t-statistics are based on standard errors computed from 1000 bootstrap replications. For comparison purpose, Tables 3(a) and 3(b) show the OLS estimates. Moreover, the ordinary least squares (OLS) t-statistics are based on White (1980) heteroskedasticity robust standard errors.

Since OLS estimation only focuses on the central tendency of the distribution, the result of OLS regression does not consider the probability that the influence of predictor variables might vary for firms with higher or lower values of Tobin's q. The numerical results for quantile regression presented in Tables 3(a) and 3(b) demonstrate that this is in fact the case.

Figure 3 (Appendices) allows a visual appreciation of the OLS and quantile regression results for Depth and Breadth. As shown, the median quantile regression result for Depth is significantly larger than the OLS regression estimate. This indicates that the OLS regression estimate for Depth might be biased downwards. In contrast, at the 50th quantile, the estimated coefficient of Breadth is smaller than the OLS regression result of this variable. This implies that the OLS regression results might be biased upwards. Further, the sign of the coefficients for Breadth does not remain consistently positive in all parts of the distribution. At the 60th quantile, the coefficient of Breadth is negative.

Table 3(a): OLS and Quantile Regression Results

Pooled simultaneous quantile regression of 5-year Tobin's q to firm-specific factors and industry-dummies. Independent variables include Depth, RDI, AD, DEBT and Size. The sample includes 41 multinational companies domiciled in New Zealand and comprises yearly firm performance from 2004 to 2008. Coefficients with the corresponding p-values in brackets are reported for the 10th, 20th, 30th, 40th, 50th, 60th, 70th, 80th and 90th quantiles. The ordinary least squares *t*-statistics are based on White (1980) heteroskedasticity robust standard errors while the quantile regression *t*-statistics are based on standard errors computed from 1000 bootstrap replications. * denotes coefficients that are significantly different from zero at the 5% significance level.

Independent Variable	Regression Coefficients									
	OLS	10th	20th	30th	40th	50th	60th	70th	80th	90th
Depth	-7.1602	-0.5278	-0.4125	-0.4664	-0.6163	-0.6065	-0.1858	-0.2934	-1.4584	-8.3968*
	(0.159)	(0.206)	(0.235)	(0.202)	(0.205)	(0.399)	(0.961)	(0.860)	(0.549)	(0.008)
RDI	5.7314*	6.6313*	6.5488	6.6021	6.5979	6.5483	6.5171	6.0492	6.0605	5.8253
	(0.000)	(0.049)	(0.174)	(0.266)	(0.435)	(0.638)	(0.737)	(0.800)	(0.816)	(0.813)
AD	1.1596	-0.0005	0.1077	0.0056	-0.0015	0.0434	0.0461	0.7823	0.7012	0.6257
	(0.569)	(0.999)	(0.668)	(0.983)	(0.996)	(0.925)	(0.972)	(0.228)	(0.392)	(0.726)
DEBT	1.9628	0.7014	-0.1027	0.1606	0.2177	-0.1554	-0.5374	-0.9886	-2.0748	-2.6259
	(0.638)	(0.236)	(0.866)	(0.799)	(0.774)	(0.869)	(0.947)	(0.401)	(0.121)	(0.100)
Size	-3.4696	-0.2858*	-0.2823*	-0.2961*	-0.3315*	-0.4132*	-0.5016	-0.7170*	-0.7421*	-2.2707*
	(0.081)	(0.050)	(0.007)	(0.004)	(0.004)	(0.007)	(0.724)	(0.002)	(0.045)	(0.003)
IND	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 3(b): OLS and Quantile Regression Results

Pooled simultaneous quantile regression of 5-year Tobin's q to firm-specific factors and industry-dummies. Independent variables include Breadth, RDI, AD, DEBT and Size. The sample includes 41 multinational companies domiciled in New Zealand and comprises yearly firm performance from 2004 to 2008. Coefficients with the corresponding p-values in brackets are reported for the 10th, 20th, 30th, 40th, 50th, 60th, 70th, 80th and 90th quantiles. The ordinary least squares *t*-statistics are based on White (1980) heteroskedasticity robust standard errors while the quantile regression *t*-statistics are based on standard errors computed from 1000 bootstrap replications. * denotes coefficients that are significantly different from zero at the 5% significance level.

Independent Variable	Regression Coefficients									
	OLS	**10th**	**20th**	**30th**	**40th**	**50th**	**60th**	**70th**	**80th**	**90th**
Breadth	0.7274	0.0438	0.0371	0.0287	0.0498	0.0586	-0.0071	0.0452	0.1868	0.7539*
	(0.125)	(0.632)	(0.174)	(0.324)	(0.172)	(0.266)	(0.931)	(0.736)	(0.366)	(0.009)
RDI	5.9896*	6.7204*	6.5451	6.6104	6.6076	6.5481	6.4199	6.1027	6.1166	6.4593
	(0.000)	(0.036)	(0.091)	(0.232)	(0.398)	(0.620)	(0.740)	(0.796)	(0.812)	(0.785)
AD	0.7145	-0.1507	0.1132	-0.0083	-0.0274	0.0438	0.2092	0.6933	0.6000	-0.4453
	(0.743)	(0.923)	(0.644)	(0.976)	(0.935)	(0.941)	(0.706)	(0.300)	(0.524)	(0.823)
DEBT	1.8196	0.7826	-0.1251	0.0640	0.1580	-0.2040	-0.4764	-0.9396	-2.1899	-2.2949
	(0.660)	(0.400)	(0.829)	(0.916)	(0.824)	(0.866)	(0.625)	(0.382)	(0.100)	(0.177)
Size	-3.7335	-0.2978*	-0.3039*	-0.2914*	-0.3542*	-0.4369*	-0.5627*	-0.7204*	-0.7664*	-2.3403*
	(0.081)	(0.017)	(0.010)	(0.010)	(0.005)	(0.013)	(0.003)	(0.001)	(0.044)	(0.003)
IND	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

5.1 Estimated effects of depth on Tobin's q

The regression statistics of Table 3(a) present the results from the estimation of model (a) described in section *4.2.1*. As shown in Table 3(a), the results of OLS estimation for Depth are negative but statistically insignificant. Moreover, the coefficients for Depth are negative in all quantiles of the conditional Tobin's q distribution. While the coefficient of Depth at the 90^{th} quantile is significant (p=0.008), others are insignificant (p>0.05). On the one hand, as the results of Depth are insignificant from the 10^{th} quantile to the 80^{th} quantile of the conditional distribution of firm performance, the null hypothesis: there is no relationship between depth of internationalization and firm performance, cannot be rejected. On the other hand, the significantly negative coefficient at the highest quantile indicates that as MNCs become more profitable, they might be negatively affected by the depth of geographical concentration. Since there is only one significant coefficient for Depth, the magnitude of the estimated coefficients of this variable cannot be observed.

As per Table 3(a), the coefficients of the control variables (RDI, AD, DEBT and Size) are reported. Firstly, the OLS estimated coefficients of these variables are nearly all statistically insignificant, with the exception of RDI (p=0.000). Secondly, while RDI enters with a significantly positive coefficient (beta=6.6313, p<0.05) at the lowest quantile of the distribution, it becomes insignificant from the 20^{th} quantile to the 90^{th} quantile. Moreover, AD and DEBT have insignificant (p>0.05) coefficients at all quantiles of the distribution. Fourthly, Size enters with a significantly negative coefficient in the lower (10^{th}, 20^{th} and 30^{th}) and the median quantiles, whereas it loses significance at the 60^{th} quantile and then becomes significant again at the higher (70^{th}, 80^{th} and 90^{th}) quantiles. Further, looking at the math results of Size in Table 3(a) I find

that the magnitude of Size effects increases from the lower (20^{th}, 30^{th} and 40^{th}) quantiles to the higher (70^{th}, 80^{th} and 90^{th}) quantiles. This finding suggests the importance of controlling for size of a firm as its performance increases.

In brief, H1A is partially supported by the finding that is only at the 90^{th} quantile, the coefficients of depth are significantly negative in the conditional distribution of firm performance. However, there is no evidence found that supports H1B since the magnitude of the coefficients of Depth cannot be investigated based on the estimated coefficients.

5.2 Estimated effects of breadth on Tobin's q

The regression statistics of Table 3(b) demonstrate the results from the estimation of model (b), which is proposed in section *4.2.1*. First of all, the OLS estimation result of Breadth is positive but statistically insignificant (beta=0.7274, $p>0.05$). Secondly, Breadth enters with a positive coefficient at the lower (20^{th}, 30^{th} and 40^{th}) and the median quantiles. It changes sign at the 60^{th} quantile and becomes positive instantly at the following quantiles. More, the quantile regression results of Breadth are almost all statistically insignificant except for the coefficient at the 90^{th} quantile of the conditional distribution of Tobin's q. This finding indicates that firms that have higher value of Tobin's q are possible to capture the benefits of breadth of internationalization. Because there is only one significant result of quantile regression, the magnitude of Breadth effects on firm performance is hard to be detected.

Table 3(b) also reports the estimated results of control variables that are RDI, AD, DEBT and Size. First, while the coefficient of RDI is significant ($p<0.05$), the results of OLS estimation for other control variables are insignificant. Second, the coefficients of RDI are positive at all quantiles of the distribution, whereas there is only one

statistically significant result that is at the lowest quantile. Third, sign of the coefficients of both AD and DEBT changes between the quantiles. What is more, the coefficients are insignificant for both variables at all quantiles. Last, the estimated results of Size are significantly negative at all quantiles of the distribution. In addition, magnitude of Size effects increases from the lowest quantile to the highest quantile.

In short, since there is only one significantly positive coefficient of Breadth at the 90^{th} quantile of the conditional distribution of firm performance, the finding partially supports H2A. Furthermore, the magnitude of the coefficients of Breadth cannot be observed based on the reported results, and thus there is no finding that supports H2B.

6. Conclusion

As stated throughout this research, the purpose of the research is to investigate the impact of both depth and breadth of internationalization on firm performance by utilizing data that includes 41 multinational companies domiciled and incorporated in New Zealand and covers a period from 2004 to 2008. Firstly, this research has reviewed prior literature that empirically and theoretically examined the internationalization-performance relationship, and summarized the findings of these studies. Secondly, since the prior literature studying this topic has been limited to multinational companies from large developed and emerging economies, this research is devoted to investigating the relationship between internationalization and firm performance from a smaller market economy context. In addition, following the work of Lee et al. (2008), this research uses Tobin's q, a market-based measure, as the dependent variable, and breadth and depth of internationalization as key independent variables. Moreover, considering the limitation of OLS regression, focusing only on the central tendency of the distribution, and so presenting an inadequate picture of the relationship, this research employs quantile regression analysis that can provide a more complete picture of the underlying relationship between internationalization and firm performance. The findings of this research are presented as follows:

Firstly, this research does not find a significant relationship between degrees of internationalization and firm performance at most quantiles of the conditional performance distribution. Secondly, MNCs located at the highest quantile of the distribution are possibly inversely affected by the depth of internationalization. Additionally, there is a significantly positive internationalization-performance relation detected at the highest quantile. This finding indicates that firms with higher values of

Tobin's q are able to benefit from breadth of internationalization. Moreover, the magnitude of negative effects of size is much larger at the higher quantiles. Consistent with some previous studies, this finding suggests that as firm size increases, financial performance is expected to be lower (Banz, 1981; Hsu & Boggs, 2003). To sum up, MNCs with the largest values of Tobin's q are more sensitive to international expansion activities and the size effect.

7. Limitations

There are some limitations in this dissertation. First, the sample in this research consists of publicly listed firms that have foreign subsidiaries. Therefore, one limitation of this research is that it has not covered the multinational companies that have internationalization activities through exporting. Consequently, the test results might be insufficient and biased to explain the relationship between internationalization and firm performance. Second, the results are derived from the sample of New Zealand based MNCs. Therefore, another limitation of this study is that the findings might be country-specific. In other words, as the sample country changes, findings might be different.

Reference:

Allen, L., & Pantzalis, C. (1996). Valuation of Operating Flexibility of Multinational Corporations. *Journal of International Business Studies, 27*(4), p633-653.

Banz, R. R. (1981). A Possible Explanation of the Small Firm Effect. *The Journal of Finance, 36*(4), p879-889.

Benito, G. R. G., Tomassen, S., Bonache-Pérez, J., & Pla-Barber, J. (2005). A Transaction Cost Analysis of Staffing Decisions in International Operations. *Scandinavian Journal of Management, 21*(1), p101-126.

Brewer, H. L. (1981). Investor Benefits from Corporate International Diversification. *Journal of Financial and Quantitative Analysis, March*, p113-124.

Buckley, P. J., Dunning, J. H., & Pearce, R. B. (1984). An Analysis of the Growth and Profitability of the World's Largest Firms 1972 to 1977. *Kyklos, 37*, p3-26.

Capar, N., & Kotabe, M. (2003). The Relationship between International Diversification and Performance in Service Firms. *Journal of International Business Studies, 34*, p327-344.

Coad, A., & Rao, R. (2006). Innovation and Market Value: A Quantile Regression Analysis. *Economics Bulletin, 15*(13), p1-10.

Collins, J. M. (1990). The Impact of Diversification Strategy on Risk-return Performance. *Strategic Management Journal, 10*, p271-284.

Contractor, F. J., Kundu, S. K., & Hsu, C. C. (2003). A Three-stage Theory of the Multinational Enterprise. *Journal of International Business Studies, 34*(1), p5-18.

Delios, A., & Beamish, P. W. (1999). Geographic Scope, Product Diversification, and The Corporate Performance of Japanese Firms. *Strategic Management Journal, 20*, p711.

Dunning, J. H. (1993). *Multinational Enterprises and the Global Economy*. UK: Addision-Wesley.

Eriksson, K., Johanson, J., Majkgard, A., & Sharma, D. (1997). Experiential Knowledge and Cost in the Internationalization Process. *Journal of International Business Studies, 28*, p237-260.

Geringer, J. M., Beamish, P. W., & DaCosta, R. C. (1989). Diversification Strategy and Internationalization: Implications for MNE Performance. *Strategic Management Journal, 10*(2), p109-119.

Goerzen, A., & Beamish, P. W. (2003). Geographic Scope and Multinational Enterprise Performance. *Strategic Management Journal, 24*, p1289-1306.

Gomes, L., & Ramaswamy, K. (1999). An Empirical Examination of the Form of the Relationship Between Multinationality And Performance. *Journal of International Business Studies, 30*, p173-188.

Granstrand, O., Håkansson, L., & Sjölander, S. (1993). Internationalization of R&D: A Survey of Some Recent Research. *Research Policy, 22*(5-6), p413-430.

Grant, R., Jammine, A., & Thomas, H. (1988). Diversity Diversification and Profitability Among British Manufacturing Companies, 1972-1984. *Academy of Management Journal, 31*, p771-801.

Hamel, G., & Prahalad, C. K. (1985). Do You Really Have a Global Strategy? *Harvard Business Review, 63*(4), p139-140.

Han, K., Lee, S., & Suk, D. (1998). Multinationality and Firm Performance. *Multinational Business Review, 62*(2), p63-70.

Harvey, J., & Milios, J. (1999). Foreign Direct Investment. In P. O'Hara (Ed.), *The Encyclopedia of Political Economy*. London: Routledge.

Hennart, J. (Ed.). (1982). *A Theory of Multinational Enterprise*: Ann Arbor: The University of Michigan Press.

Hitt, M. A., Hoskisson, R. E., & Kim, H. (1997). International Diversification: Effects on Innovation and Firm Performance in Product-diversified Firms. *Academy of Management Journal, 40*(4), p767-798.

Hitt, M. A., Hoskisson, R. E., & Kim, H. (1997). International Diversification: Effects on Innovation and Firm Performance in Product Diversified Firms. *Academy of Management Journal, 40*(4), p767-798.

Hoskisson, R. E., Johanson, R. A., & Moesel, D. D. (1993). Construct Validity of an Objective (Entropy) Categorical Measure of Diversification Strategy. *Strategic Management Journal, 14*(3), p215-236.

Hsu, C., & Boggs, D. J. (2003). Internationalization and Performance: Traditional Measures and Their Decomposition. *Multinational Business Review, 11*(3), p23-49

Hsu, C., & Pereira, A. (2006). Internationalization and Performance: The Moderating Effects of Organizational Learning. *Omega, 36*, p188-205.

Johnson, R. W. (2001). An Introduction to the Bootstrap. *Teaching Statistics, 23*(2), p49-54.

Jung, Y. (1991). Multinationality And Profitability. *Journal of Business Research, 23*, p179-187.

Kim, W. C., Hwang, P., & Burgers, W. P. (1993). Multinationals' Diversification and the Risk-Return Trade-Off. *Strategic Management Journal, 14*, p275-286.

Koenker, R., & Basset, G. (1978). Regression Quantiles. *Econometrica, 46*(1), p33-50.

Koenker, R., & Xiao, Z. J. (2002). Inference on the Quantile Regression Process. *Econometrica, 70*(4), p1583-1612.

Kogut, B. (1985). Designing Global Strategies: Comparative and Competitive Value Added Chains. *Sloan Management Review, 27*, p27-38.

Kumar, M. S. (1984). *Growth, Acquisition and Investment: An Analysis of the Growth of Industrial Firms and Their Overseas Activities.* Cambridge, UK: Cambridge University Press.

Kumar, M. S. (Ed.). (1984). *Grouth, Acquisition and Investment: An Analysis of the Growth of Industrial Firms and Their Oversea Activities*. UK: Cambridge University Press.

Lee, T., Chan, K. C., Yeh, J. H., & Chan, H. Y. (2008). The Impact of Internationalization on Firm Performance: A Quantile Regression Analysis. Working Paper. Department of International Business. Yuan Ze University.

Li, J., & Rugman, A. M. (2007). Real Options and the Theory of Foreign Direct Investment. *International Business Review, 16*(6), p687-712.

Lu, J. W., & Beamish, P. W. (2001). The Internationalization and Performance of SMEs. *Strategic Management Journal, 22*, p565-586.

Lu, J. W., & Beamish, P. W. (2004). International diversification and firm performance: the S-curve hypothesis. *Academy of Management Journal, 47*(4), p598-609.

Lu, J. W., & Beamish, P. W. (2006). SME Internationalization and Performance: Growth vs. Profitability. *Journal of International Entrepreneurship, 4*(1), p27-48.

Mcdougall, P., & Oviatt, B. (1996). New Venture Internationalization, Strategic Change, and Performance: A Follow-Up Study. *Journal of Business Venturing, 11*(1), p23-40.

Mello, A. S., Parsons, J. E., & Triantis, A. J. (1995). An Integrated Model of Multinational Flexibility and Hedging Policies. *Journal of International Economics, 39*, p27-51.

Morck, R., & Yeung, B. (1991). Why investors value multinationality. *Journal of Business, 64*(20), p165-187.

Palich, L. E., Cardinal, L. B., & Miller, C. C. (2000). Curvilinearity in the Diversification-Performance Linkage: An Examination of Over Three Decades of Research. *Strategic Management Journal, 21*(2), p155-174.

Pangarkar, N. (2008). Internationalization and Performance of Small- and Medium-Sized Enterprise. *Journal of World Business, 43*, p475-485.

Qian, G. M., & Li, J. (2002). Multinationality, Global Market Diversification and

Profitability among the Largest US Firms. *Journal of Business Research, 55*, p325-335.

Ramaswamy, K. (1992). Multinationality and Performance: A Synthesis and Redirection. *Advances in International Comparative Management, 7*, p241-267.

Root, F., & Visudtibhan, K. (1994). International Strategic Management: Challenges & Opportunities. *Études Internationales, 25*(1), p175.

Ruigrok, W., Amann, W., & Wagner, H. (2007). The Internationalization-Performance Relationship at Swiss Firms: A Test of the S-Shape and Extreme Degrees of Internationalization. *Management International Review, 47*(3), p349-368.

Ruigrok, W., & Wagner, H. (2003). Internationalization and Performance: An Organizational Learning Perspective. *Management International Review, 43*, p63-83.

Rumelt, R. P. (1982). Diversification Strategy and Profitability. *Strategic Management Journal, 3*(4), p359.

Shan, W., & Song, J. (1997). Foreign Direct Investment and the Sourcing of Technological Advantage: Evidence from the Biotechnology Industry *Journal of International Business Studies, 28*(2), p267-284.

Shoham, A. (1998). Export Performance: A Conceptualization and Empirical Assessment. *Journal of International Market, 6*(3), p59-81.

Siddharthan, N. S., & Lall, S. (1982). Recent Growth of the Largest US Multinationals. *Oxford Bulletin of Economics and Statistics*.

Statistics New Zealand. (2008). *Global New Zealand - June 2008*. Retrieved June 20, 2009, from http://www.stats.govt.nz/products-and-services/global-new-zealand/2008/default.htm

Sullivan, D. (1994). Measuring the Degree of Internationalization of A Firm. *Journal of International Business Studies, 25*(2), p325-342.

Tallman, S., & Li, J. (1996). Effect of International Diversity and Product Diversity on The Performance of Multinational Firms. *Academy of Management Journal, 39*, p179-196.

Thomas, D. E., & Eden, L. (2004). What is the Shape of the Multinationality-Performance Relationship? *Multinational Business Review, 12*(1), p89.

White, H. (1980). A Heteroskedasticity-Consistent Covariance Matrix Estimator and a Direct Test for Heteroskedasticity. *Econometrica, 48*(4), p817-838.

Yu, K., Lu, Z., & Stander, J. (2003). Quantile Regression: Applications and Current Research Areas. *The Statistician, 52*(3), p331-350.

Zaheer, S. (1995). Overcoming the Liability of Foreignness. *The Academy of Management Journal, 38*(2), p341-363.

Zahra, S., Ireland, R., & Hitt, M. (2000). International Expansion by New Venture Firms: International Diversity, Mode of Market Entry, Technological Learning, and Performance. *Academy of Management Journal, 43*(5), p925-950.

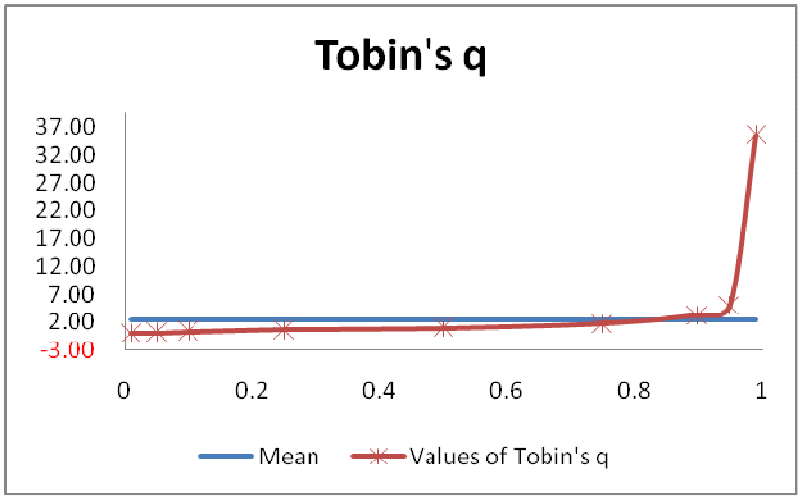
Zahra, S. A., Neubaum, D. O., & Huse, M. (1997). The Effect of The Environment on Export Performance Among Telecommunications New Ventures. *Entrepreneurship: Theory and Practice, 22*(1), p25-46.

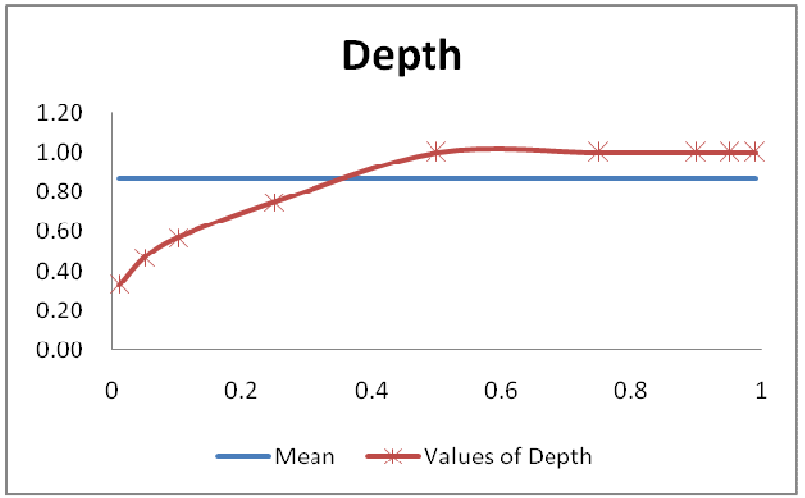
Appendices:

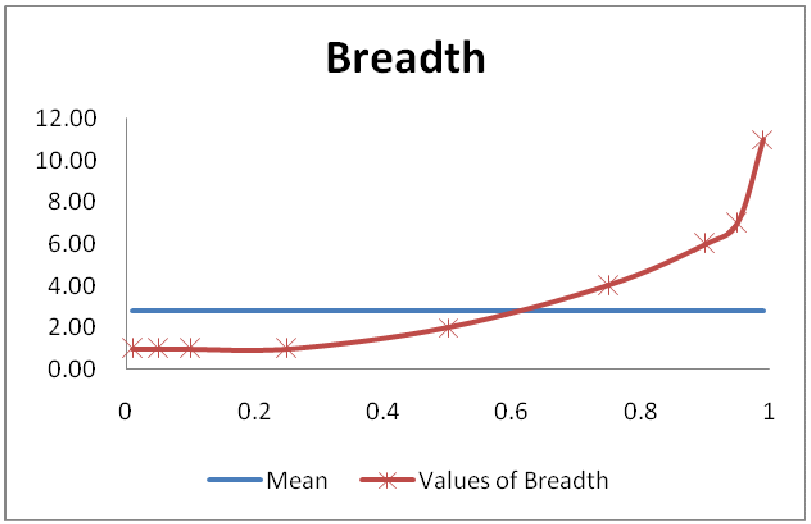
Figure 1:

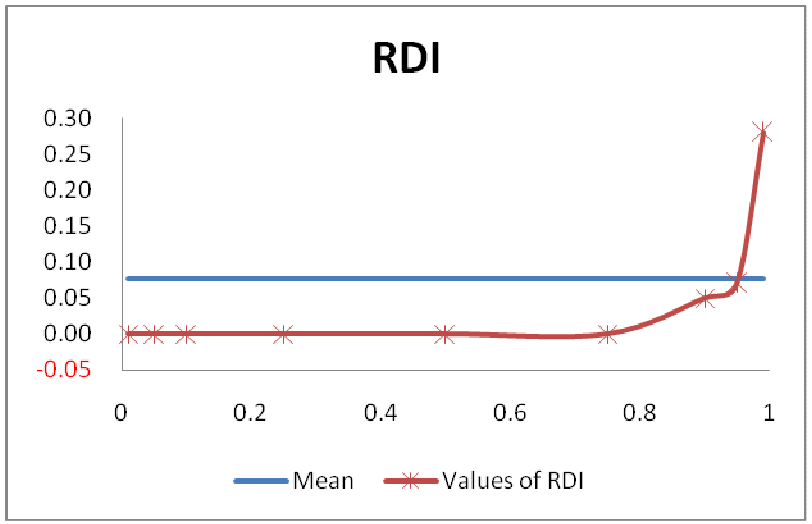
Company	Code	Industry
NZ wool services international Ltd	WSI	Agriculture & Fishing
PGG Wrightson Ltd	PGW	Agriculture & Fishing
Sanford Ltd	SAN	Agriculture & Fishing
Turners & Growers Ltd	TUR	Agriculture & Fishing
Nuplex Industries Ltd	NPX	Building Materials & Construction
Fletcher Building Ltd	FBU	Building Materials & Construction
Hallenstein Glasson Holdings Ltd	HLG	Consumer
Restaurant Brands New Zealand Ltd	RBD	Consumer
Michael Hill International Ltd	MHI	Consumer
VTL Group Ltd	VTL	Consumer
Pumpkin Patch Ltd	PPL	Consumer
TrustPower Ltd	TPW	Energy
Infratil Ltd	IFT	Energy
Tower Ltd	TWR	Finance & Other Services
New Image Group Limited	NEW	Finance & Other Services
A2 Corporation Ltd	ATM	Food
Delegat's group Ltd	DGL	Food
Tenon Ltd	TEN	Forestry & Forest Products
EBOS Group Ltd	EBO	Intermediate & Durables
Methven Ltd	MVN	Intermediate & Durables
ProvencoCadmus Ltd	PVO	Intermediate & Durables
Skellerup Holdings Ltd	SKL	Intermediate & Durables
Wellington Drive Technologies Ltd	WDT	Intermediate & Durables
Fisher & Paykel Appliances Holdings Ltd	FPA	Intermediate & Durables
Fisher & Paykel Healthcare Corporation Ltd	FPH	Intermediate & Durables
Finzsoft Solutions Ltd	FIN	Investment
Hellaby Holdings Ltd	HBY	Investment
Media Technology Group Ltd	MTG	Investment
Mowbray Collectables Ltd	MOW	Investment
CER Group Ltd	CER	Investment
Rubicon Ltd	RBC	Investment
Sealegs Corporation Ltd	SLG	Investment
Southern Travel Holdings Ltd	STH	Leisure & Tourism
Tourism Holdings Ltd	THL	Leisure & Tourism
Sky City Entertainment Group Ltd	SKC	Leisure & Tourism
Zintel Group Ltd	ZIN	Media & Comms
Telecom Corporation of NZ Ltd	TEL	Media & Comms
NZ oil and gas Ltd	NZO	Mining
ING Medical Properties Trust	IMP	Property
Air New Zealand Ltd	AIR	Transport
Mainfreight Ltd	MFT	Transport

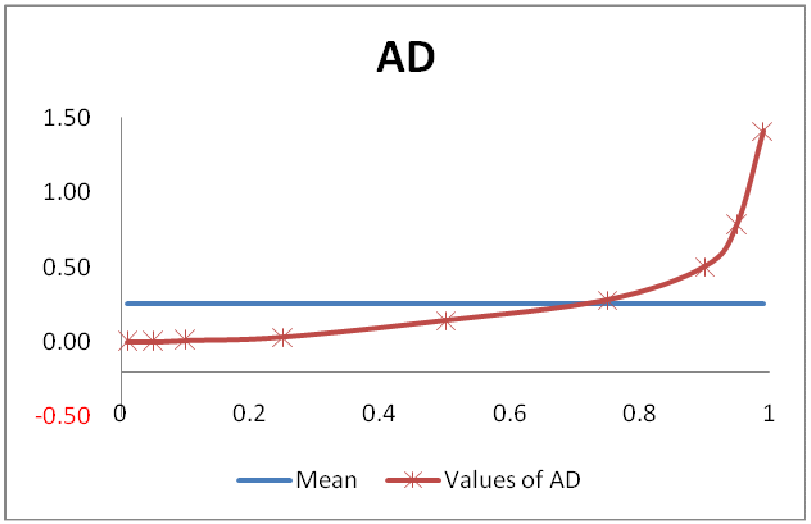
Figure 2: Mean Values and Quantiles of Variables

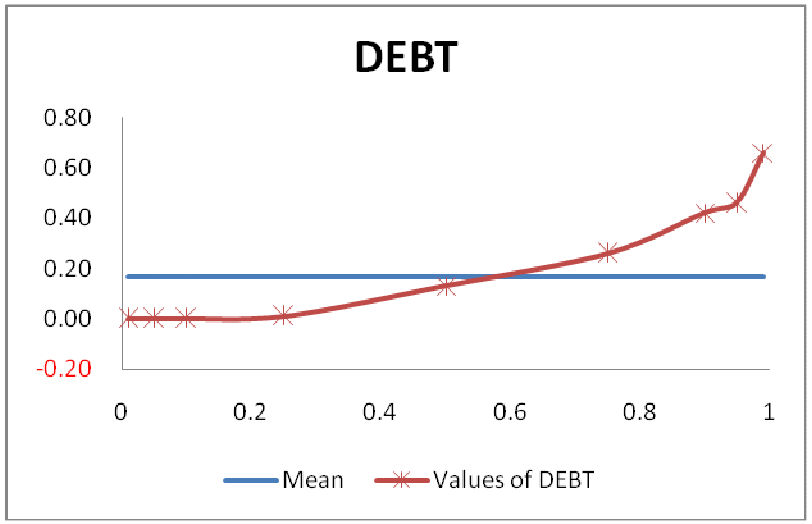









AD
1.50
1.00
0.50
0.00
-0.50
0
0.2
0.4
0.6
0.8
1
Mean
Values of AD


DEBT
0.80
0.60
0.40
0.20
0.00
-0.20
0
0.2
0.4
0.6
0.8
1
Mean
Values of DEBT

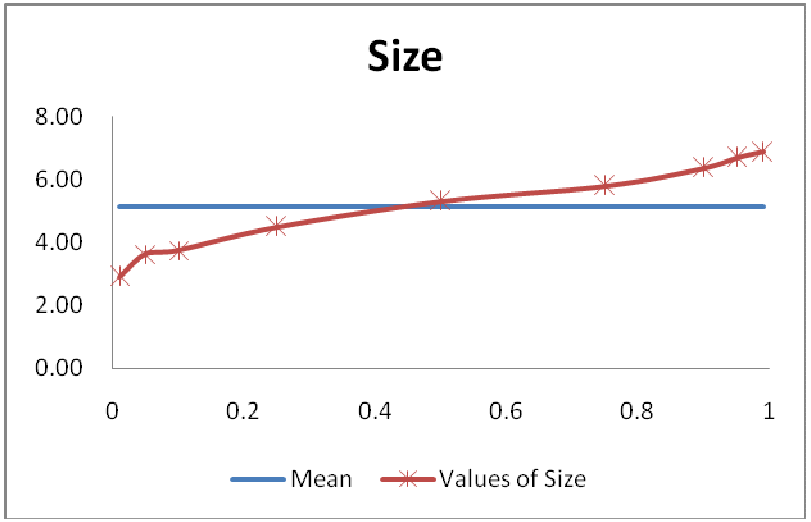

Size
8.00
6.00
4.00
2.00
0.00
0
0.2
0.4
0.6
0.8
1
Mean
Values of Size

Figure 3: OLS and Quantile Regression Results