DIVERSIFICATION IN THE EMERGING MARKETS: DOES MARKET POWER AND EXPANDED GROWTH PROSPECTS LEAD TO DIVERSIFICATION PREMIUM?

By

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<u>Notes</u>

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ABSTRACT

Diversification and its role in management and corporate finance have always tickled the minds of academia and CEOs alike. While US-based studies have found that there is a diversification discount, recent research has provided some contradictory alternative explanations and findings. The benefits and costs of diversification and its role are even more opaque on an international basis. As globalization increases, there is a yearning for more comprehensive knowledge on diversification as firms become international in scope. While managers would like a set of clear cut rules regarding usage of diversification in their management roles, investors and shareholders would like a more formal and objective way to measure the value added through diversification into emerging markets. Using a sales multiple to value diversification on XXX firms in XX emerging markets from XXXX to XXXX, I found that there is a premium to firm valuation if diversification is used (1) to increase market power to overcome local market failures and inefficiencies, or (2) to achieve continual growth through industrial or international diversification when local maximum local growth potential is reached. I have also found that diversification affects firm value through different institutional settings in the emerging markets and a different perspective and variable sets should be used in measuring the value of diversification on firm value.

CHAPTER 1: INTRODUCTION

1. Establish general area of interest.

   (a) Diversification and focus.

   (b) Diversification in the emerging markets.

2. Mini-literature review – theoretical frameworks and research studies.

3. Knowledge gap.

   (a) Evaluating and measuring the benefits and costs of diversification for emerging markets.

   (b) Using market power, existing market share position and growth potential, institutional and political framework differences between countries, and other factors as variables to evaluate the effects of diversification on firm value.

4. Purpose of filling this gap?

   (a) Identify factors that affect the value of diversification in the emerging markets.

5. Justification and significance of findings.

   (a) Little knowledge currently existing on success factors of diversification in the emerging markets and it is a relative new area of study.

   (b) In current non-academic environment, results of diversification varies. Successfully diversified firms not likely to share their knowledge. This work will be publicly available.

   (c) Increase success of diversification efforts to the emerging markets by firms as little research currently used by firms in their management process.

(d) Contribute to a better understanding of the issues for further research.

6. Delimitations and scope of research work.

    (a) Limited to firms that are part of the WorldScope database.

    (b) There might still exist other factors that affect diversification in the emerging markets.

    (c) Financial and operating results as measure of performance, but social and other immeasurable aspects not account for in firm valuation.

    (d) Do not differentiate between different types of conglomerates and diversification activities, especially all the particular conditions facing each firm.

7. Outline of dissertation.

    (a) Chapter 2 Theoretical Framework.

    (b) Chapter 3 Literature Review.

    (c) Chapter 4 Data Compilation.

    (d) Chapter 5 Data Analysis.

    (e) Chapter 6 Results of Data Analysis.

    (f) Chapter 7 Robustness Tests

    (g) Chapter 8 Discussions and Implications

CHAPTER 2: THEORETICAL FRAMEWORKS

This chapter will provide several frameworks and their theoretical underpinning on explaining the rationale behind diversification, its characteristics, and its benefits and costs. Due to the complexity and scope of this topic, each framework provides various interlocking pieces of the jigsaw to the diversification puzzle. Each framework provides a glimpse of some confounding parts of the total picture but is not able to indicate what the whole picture is. The frameworks include internalization of firm assets, efficiency and synergistic benefits, market inefficiencies and failures, transaction cost theory, internal capital markets theory, and agency theory. Table XX at the end of this chapter provides a summary of the frameworks, their characteristics, and benefits and costs relating to diversification.

WHY DIVERSIFY?

Firms have diversified since the industrial revolutions in the 1900s. Expand.

Since the 1950s, there has been a steady increase in diversification in the US (Comment 1995). Expand. Several external environmental reasons were believed to have caused the frantic pace of conglomerate merger of the 1950s and 1960s. The tough antitrust measures are believed to have restrained growth in firms size (cite examples of AT&T to baby bell and others). In order to accommodate continual growth, firms diversified into other related and non-related industries (Comment 1995) (La Porta 1998). Advances in computing

and communications technology, together with the ease of traveling to other markets, wetted firms' appetite to expand internationally. The development of computing technology allowed vastly improved efficiency in how most tasks are performed. Expand.

Relative costs and benefits of industrial and international diversification changes over time and there has been a decrease in diversification and return to focus in the corporate landscape over the last twenty years. Several reasons are cited for this return to corporate focus. Liebeskind and Opler (1994) found that firms need to focus on their core businesses due to increased competition. Shleifer and Vishny (1991) believes that a relaxation of antitrust enforcement has resulted in a decrease in industrial diversification. Hubbard and Palia (1999) found that there is a secular decline in diversification levels because gains in informational efficiency of external capital markets have diminished the historical advantages of the diversified organization. Jensen (1993) argued that the decrease in industrial diversification is due to forced reversals of prior diversification efforts from the 1950s and 1960s. The market for corporate control was very active in forcing management to focus their attention on segments which falls within their expertise. Expand.

While domestic markets in developed countries are being saturated by increasing output from production, firms are turning more attention to emerging markets as these markets have developed into potential customers for different types of products from the developed markets. Much of the international acquisition activities were strategic as firms were acquired and

merged from different industries in an effort to position themselves in the emerging markets. Expand.

As firms diversify internationally, scholars and practitioners are intrigued by the results of the various diversification efforts. While some are highly successful, some diversification efforts have reduced firm value despite apparently good fit and synergistic opportunities.

While benefits like economies of scale and scope and synergistic opportunities are obvious in related diversification, the benefits of non-related diversification is less obvious. In addition, the expected benefits of diversification did not pan out in many of the related diversifications. In order to study this phenomenon, researchers used several frameworks to further study these relationships. The frameworks used are internalization of intangible asset, efficiency gains and synergistic benefits, market inefficiency and failures, transaction cost theory, internal capital market theory, and agency theory.

INTERNALIZATION OF FIRM ASSETS

Caves (1971) proposed a resource-based view that firms diversify in order to internalize assets that they have. He proposed that these firms have valuable information-based or firm-specific assets that have increasing returns to scale but are difficult to sell and impossible to share with external parties. Under this internalization theory of synergy (Denis 2002), these firms will have to

internalize these assets by diversifying into other industries that can utilize fully the potential of these valuable internal assets. Under this framework, diversification is expected to be more prevalent when there are substantial intangible or firm-specific assets like superior production skills, marketing skills, and management quality in a firm.

EFFICIENCY GAINS AND SYNERGISTIC BENEFITS

The efficiency and synergy framework is also based on the resource-based view that firms can benefit by using their existing resources more efficiently or differently. Firms can increase efficiency gains by increasing volume of production or scope of product offerings. Firms can also obtain synergistic benefits when firm resources are combined in different configurations, producing synergistic benefits for the firm. There are also operational, financial, and managerial benefits when firms are involved in different types of businesses.

Efficiency gains from diversification include economies of scale and scope, and synergistic benefits from diversification including higher debt capacity and tax shield from interest, lower borrowing cost, transfer pricing, and asymmetric tax treatment of gains and losses. Both the use of economies of scale and scope and synergistic benefits arise from common usage of some resources of the firm described as operating advantages by Lewellen (1971). In addition, these benefits should be more pronounced when they are from related rather

than unrelated diversification because more skills and resources can be shared and used in related markets or products (Rumelt 1974).

Despite the benefits, certain costs are incurred to achieve these efficiency gains and synergistic benefits. These costs include increased difficulty to manage and coordinate the activities of the various related activities, increase management expertise, time, and focus required, and increased potential for agency problems.

Economies of scale and scope. Firms can diversify to take advantage of production, operational, and managerial related benefits from economy of scale or scope. Economies of scale involve expansion of output of existing products and economies of scope involve expansion to related products while using existing production and other firm infrastructures. By using a firm's existing infrastructures, the incremental unit cost is lower than a new entrant having to start from scratch, making the incumbent firm more competitive (Weston 1970; Chandler 1977; Teece 1980).

To take advantage of economy of scale, a firm can expand production, spread its fixed costs of production over the larger number of units produced, and reduces its unit production cost. Other operational costs, like administrative or advertisement costs, might increase at a lesser scale as production increases, thereby also reduces unit production cost. Managerial costs of managing the firm can also be spread over larger number of units produced, and these managerial costs will also increase at a lesser rate then production output. Most corporate mergers are consummated based on expectation of cost

savings from the reduction of expenses that are duplicated. When firms are larger in size or produce in larger quantities, they can often obtain quantity discount for various input materials to further reduce cost.

To take advantage of economy of scope, a firm can expand to related products of which it can utilize its existing production, distribution, and marketing facilities to produce and market at a lower cost. Managerial time to manage the new related product is lower as managers can apply their existing expertise and experience to the new products.

Economies of scale and scope can also apply to non-production based products or applications. There can be reputation spillovers when a firm expands to related products and the new product can take advantage of an existing brand name and awareness. Even service industries can benefit from economy of scope and effects of reputation spillover (Nayyar 1993).

Economies of scale and scope can also extend to overseas markets. Local firms can expand production and market the same products overseas by setting up agents or foreign subsidiaries. International firms can expand to related products using its existing distribution channels and management expertise (Bodnar 1997).

Synergistic benefits. Synergistic benefits involve obtaining more output as a whole than the sum of its separate parts. Synergy provides the ability to perform tasks that cannot be performed separately by each division. For some businesses, certain size or scope of business offerings must be achieved to

compete effectively with its peers. While each segment of the business can operate independently, their combination as a group provides the customer with a wider choice and more integrated offering such that a premium price can be justified. Cite actual examples of synergistic benefits from Business Week articles and expand.

Synergy can arise from cost reduction in many parts of the operation. Common expenses like administrative costs and rents can also be shared among divisions. Synergistic gains can also be expected in many mergers from modifications to the production, logistic, or communication systems. Business, operating and financial risks can be lowered as the variability of revenue and expenses are reduced. Expand.

Synergistic gains can also arise from production processes. Unused production materials or wastage from one segment can be used as input to another segment, resulting in lower disposal, transportation, acquisition, and time costs. Many of the current petrochemical plants, oil refineries, and steel plants are fully integrated to realize these synergistic benefits.

Other possible synergistic gains come from efficiency in combining resources in the product, labor or financial markets. With operations in different markets, a diversified firm can increase operating flexibility by responding to changes in relative prices of inputs in the production, distribution and market segments (Denis 2002). International firms can reduce earnings fluctuations by having non-correlated demand and cost conditions from operations around the world.

The exposure to exchange rate fluctuations can also be reduced when a firm does businesses in various countries.

Higher debt capacity and tax shield from interest. Merger gains can be operating or financial in character (Lewellen 1971). While economies of scale and scope and synergistic gains are operating in nature, there can also be financial gains from diversification. Lewellen's (1971) financial theory of corporate diversification suggested that there are financial benefits for diversification regardless of managerial, production and operational characteristics of the combining segments. He suggested that as long as segments have non-perfectly correlated cash flow from earnings, the overall firm can benefit from diversification. Similar to benefits of diversification in investing, combining segments with different cash flow characteristics reduces the overall variability of total firm cash flow. For example, cash shortfall experienced by one unit can be partially mitigated by excess cash produced in another segment of the firm. As a result, the overall variability of the cash flow of the firm is reduced. From a creditor's perspective, this reduction in cash flow variability reduces the probability of a cash shortfall that can trigger default provisions in their loan contracts. As the default risk for the firm decreases, the lenders and creditors would be willing to provide a higher aggregate limit on lending to the firm than to the total of each separate segment together. As lending limit is increased, the firm can utilize this increase leverage to increase the tax benefits of having higher interest payment. As long as interest payments are tax deductible, this tax shield from interest will be available. This reduction in volatility of cash flow is also found

in firms outside of the US as well. Shin and Park (1999) found that the volatility of cash flow in a Korean chaebol is reduced.

Lower borrowing cost. A diversified firm can also reduce its borrowing cost for several reasons. First, a firm can reduce its borrowing cost by lowering its variability of total firm cash flow which reduces its bankruptcy and insolvency risk. Second, a diversified firm that is larger in size and more international in scope can access the global capital market and raise capital in countries with the lowest cost (Denis 2002). Third, Lowellen (1971) also suggest that lenders are willing to lend at a lower rate to diversified firms due to borrower diversification. He made the distinction between lender diversification and borrower diversification due to the asymmetric treatment of claims for lenders. For the asymmetric treatment of claims, the lenders only participate in a fixed amount of cash flow in the borrowers' firms which is the amount of the indebtedness and its interest. When the firm performs well, all the benefits of the excess cash flow accrue to the shareholders and the lenders do not get to share any of these benefits; on the other hand, the lenders do share the risk of possible non-payment when the firm is performing poorly. Given this asymmetric treatment of claims and potentials for intra-firm subsidization within segments of diversified borrowers, lenders prefer borrower diversification to lender diversification and will award lower lending rates to diversified borrowers. Lender diversification refers to lenders holding a portfolio of single segment firms as borrowers in its portfolio. But since these are independent firms, there is no cross-subsidization and the lender will need to assume the full risk of default in any one of these firms. On the other hand, the risk to the lender is lowered if the borrower is diversified because good

segments might subsidize the poorly performing segments within the borrower firms. Hence, the lender is benefited when subsidization occurs within the borrowing firms as firm value is transferred from equity to debt holders (Lewellen 1971).

Given that these benefits are derived from non-correlated segment cash flow, their effects are reduced in intra-industry mergers in which the earning streams of firms are very correlated and the opportunity for reduced variability is lower (Lewellen 1971).

Transfer pricing. When a firm diversifies internationally to locations in various tax jurisdictions, it can lower its overall tax payments by using transfer pricing to shift taxable income to jurisdictions with lower tax rates.

Asymmetric tax treatment of gains and losses. Majd and Myers (1987) suggested that there are benefits from diversification due to the asymmetric tax treatment of gains and losses. When a firm has taxable income, taxes must be paid to the tax authorities; when a firm has taxable losses, taxes are not refunded to the firm. Instead of an immediate tax refund, losses in most jurisdictions can only be carried back or forward to offset the firm's taxable income. In a diversified firm, taxable losses from one segment can be offset against taxable income of another segment to reduce the total taxes payable immediately. As a result, the benefits of having taxable losses can be realized immediately in the same year, resulting in more beneficial cash flow for the firm. Shin and Park (1999) also found that tax liabilities are lowered for diversified chaebols in Korea.

Increased difficulty and high costs to manage. As firms become more diversified and larger in size, it becomes more difficult for management to monitor and manage (Bodnar 1997). In a diversified firm, each segment has their own product, market, and customer characteristics and profiles. Managers of a diversified firm must have the knowledge, ability, time and focus to manage these different divisions, products, markets, and customer bases. Management expertise for all industry segments are required to properly evaluate opportunities, investment, and performance within each segment. Management must also have the ability to accurately assess all of the firm's industries to recognize and realize synergistic benefits. Daley, Mehrotra and Sivakumar (1997) found that firm value increases when firms become more focused because managers can pay more attention to their core operations, supporting the Corporate Focus Hypothesis. Khanna and Palepu (2000) found that the central office of diversified groups can make suboptimal decisions due to difficulty of acquiring expertise in a variety of industries at the same time.

Administratively, a large globally diversified firm is more complex due to the geographical and product diversity involved. This higher level of diversity requires much higher costs in coordinating its corporate policies (Denis 2002). There might be communication problems between corporate head office and division managers in the goal setting process, performance expectations, and developmental directions, leading to higher costs of information asymmetry and communications (Myerson 1982) (Harris 1982).

In a firm's operation, each task has its own optimal scale economy. In a diversified firm, there will be tasks that are operating at a diseconomy of scale and offsetting some of the gains from diversification. Generally, firms design their evaluation and compensation system based on the nature of the firm and the industry in order to maximize the contribution by managers. On the other hand, diversified firms are involved in different industries with varying operating characteristics and requirements. It is more difficult to design effective performance evaluation, compensation, and incentive systems to provide proper incentives to motivate divisional managers. Based on the Incentive Alignment Hypothesis, a focused firm can better align its incentives system to motivate its managers (Aron 1988) (Rotemberg 1994). However, Daley, Mehrotra and Sivakumar (1997) found that increase in firm value from spinoffs generally arise from managers being more focused on the core operation than an alignment of performance incentives.

MARKET INEFFICIENCIES AND FAILURES

Based on the portfolio theory of finance, which assumes that there is no information asymmetry and all market participants are rational and make the optimal investment decisions, there is an optimal portfolio of diversified investments of which all investors would hold. They can move up the efficient frontier for higher returns but higher risk investment combinations. They are also free to determine their own optimal leverage for their risk preference by borrowing on their own for the purchase of their investments. The assumption in the portfolio theory is that diversification is easier and cheaper to achieve

by the stockholder than the corporation (Brealey 2000). As such, all firms should be focused and unleveraged as diversification and leverage should be performed at the shareholder level. However, many inefficiencies, imperfections, and failures exist in the real world making diversification at the firm level beneficial for the shareholders.

Larger investment opportunity set for firms than individual investors. Outside of the perfectly competitive and efficient markets based on the efficient market hypothesis and portfolio theory, there are benefits for diversification at the firm level under certain conditions. First, general investors might not have the ability to perform analysis properly on the cash flow and conditions of the firms under consideration for investment. Diversification decisions under this circumstance might be better made by management of firms who has specialized knowledge of the industries. Second, there is the asymmetric information problem in which management of firms has more information than external parties. If the investment is made by a firm in the same industry, the asymmetric information problem can be reduced as firms have more resources for thorough analysis and due diligence. It would also be more efficient for management to evaluate potential firms on behalf of all its shareholders. The emergence of the mutual fund industry has increased the efficiency of investment analysis by using economies of scale and scope in its analysis. Third, the set of possible investment alternative might also be bigger for firms than investors. There are privately held firms that are not available as part of individual investors' potential investment set. Investments in these private firms can only be achieved through private equity firms or through their merger with existing

public firms. Fourth, firms might be in a better position to diversify overseas than individual investors. Less than a decade ago, it would be very difficult for individual investors to invest in an overseas market either because it is very costly or the overseas market is closed to foreign individual investors. As a result, it might be more efficient to invest overseas at the firm level. Fortunately, the recent explosive growth of the mutual fund industry has lowered the cost and access barrier to international investing for individual investors. Fifth, there are still situations, especially in emerging markets, in which the investment opportunities are only available to large public firms and not to private individual investors. For example, many countries in the emerging markets opened up their key industries to established firms from the developed countries to take advantage of technology and knowledge transfer. Private or individual foreign investors would most likely be precluded from investing in these key industries.

Market power. Villalonga (2000) offered several motives for diversification relating to market power and anti-competitive behavior. First, a diversified firm can use the profits generated from one segment to subsidize a predatory pricing scheme in a new industry. After driving out the existing competitors, the diversified firm can raise prices and earn monopoly profits. Second, a diversified firm can collude with other firms that compete with the firm in various markets simultaneously resulting in a mutual forbearance hypothesis of multi-market competition. Third, a diversified firm can engage in reciprocal buying with other large firms in order to squeeze out smaller competitors. While there are more anti-trust legislation and avenue to sort redress in developed countries, firms have a much higher ability to use market power for

private gains in the emerging markets as anti-trust measures are less strict. I will perform further analysis on market power which will be discussed in the coming sections.

Mitigate market failures. Corporate diversification can mitigate failures in the product, labor, and financial markets especially in the emerging and less developed market where the institutional structure are not well developed and the markets relatively inefficient when compared to the developed countries (Khanna 1997; Khanna 2000; Khanna 2001).

Diversified firms can mitigate market failures in several ways. First, diversified firms can compensate for market failures for transactions that are not consummated due to weak institutions for trade, contract enforcement, communication and information disclosure leading to opportunistic behavior. Second, they can build firm equity using the firm brand name for advertisement so that there is consumer awareness of the brand for new product introduction. Third, diversified firms can develop their own internal capital markets and to capitalize on the firms' reputation to assess external capital markets and direct resources internally to new ventures in lieu of external venture capital. Fourth, diversified firm can also alleviate some of the information gap and asymmetric in emerging markets due to lack of reliable financial reporting and limited analyst following. Fifth, reputable diversified firms are also more able to recruit and train capable managers. Diversified firms can also move its management talent around to where they can use their talent best, resulting in more efficient use of human resources. Sixth, diversified firms can also cultivate political favors and use these favors within

the firm where it can produce the most benefits. Seventh, diversified firms can use their reputations to improve trust for contractual enforcement for external trades and technology transfers. Groups can also trade internally to reduce transaction costs. Eighth, diversified firms can also protect its "infant industry" when entering new market and have more staying power, noise signaling and information dilution device to reduce risk of liquidation. Ninth, many firms in the emerging markets are majority owned by founder managers. Diversification at the firm level is a risk reduction strategy for them to diversify their personal holdings of the firm without giving up control. Tenth, social relationships are institutionalized in many emerging markets (Biggart 1992) and diversified firms are used to achieve goals like institutional legitimacy, political power and social fitness.

Too large to fail. In certain countries, large diversified firms account for a large percentage of the country's employment and output. While it may be difficult to make a focused firm very large due to market size and demand limitations, an initially focused firm can expand its importance and criticalness to the local economy by expansion into other industries. In these situations, the firms become "too large to fail" and managers will make risky decisions to enjoy the benefits of the upside but have the government absorb the costs of the downside when firms fail. There is an agency problem here but the cost is spread over all the citizens of the country as the government is providing the funds to bail out the firm (Kim 2004).

TRANSACTION COST THEORY

According to the transaction cost theory, a firm incurs various costs in all its dealings with external parties. These transaction costs include search cost, selection cost, evaluation cost, initial set up cost, actual transaction cost, ongoing monitoring cost, closing cost, and opportunity cost from missed opportunities for alternative choices. Some of the initial costs involving the selection of counterparties arose because there is information asymmetric problem and the firm must evaluate which counterparties it should transact with. Some of the ongoing costs like monitoring cost arose because the counterparties can still take advantage of the firm once the relationship is established. These costs can be especially high in the emerging markets where the legal and contractual frameworks are not well developed. If a firm can internalize the major functions by diversification, many of these transaction costs can be avoided or minimized. Once these functions are internalized, search cost is reduced, monitoring is easier, and internal disciplinary measures can be used to ensure the quality of the relationships. Transaction cost theory suggests that optimal firm structure depends on its institutional context. In emerging markets where there exist many market failures, it might be beneficial for firms to diversify in order to internalize external transactions to reduce transaction costs.

INTERNAL CAPITAL MARKETS THEORY

In an efficient market, capital flows to the highest positive NPV project available. However, inefficiencies or information asymmetric might cause capital to flow to less than optimal projects.

Efficient allocation of resources at low cost. Firms face high costs in trying to attract external capital for its projects than internally generated funds due to information asymmetric. Faced with this information asymmetric, investors place a risk premium and demand a higher return for their invested funds. Firms also face high issuance costs when they acquire external funding for its projects. To overcome the high cost of external capital, firms diversify and introduce their own internal capital markets with lower information asymmetric in order to allocate resources efficiently. The diversified firms can shift internal resources from segments with excess resources but low opportunities to segments with low resources but high opportunities (Stein 1997).

The internal capital market replicates functions provided by external parties and reduces information asymmetric and transaction costs between units based on transaction cost theory. Internally raised capital is less costly than externally raised capital, and the transaction costs of issuing securities to external parties and the cost of overcoming information asymmetry problem are avoided. Hadlock, Ryngaert and Thomas (2001) found that the adverse selection problem might be lower for diversified firms than comparable focused firms based on observations on issuance of the equity.

Inefficient resource allocation, investment and use of excess cash flow.

While internal capital markets can help a firm overcomes inefficiencies in obtaining capital externally, it also raises the possibilities that the firm can allocate its internal capital resources inefficiently. Many managers might not be able to allocate resources efficiently due to internal politics or influence.

Managers might invest in less than optimal project or even negative NPV projects, engage in actions with higher agency cost like acquiring additional firms without expectation of any benefits, or diverting cash for personal use. Stulz (1990) argues that diversified firms will inefficiently invest too much resource in segments with poor opportunities.

Many research studies have been performed that support this inefficient allocation finding. In the US, empirical evidence show that funds flow in the wrong direction from high opportunities divisions to low opportunities divisions. (See Lamont (1997), Houston, James, and Marcus (1997), Shin and Stulz (1998), Scharfstein (1998), and Rajan, Servaes, and Zingales (2000)). Lamont (1997) and Shin and Stulz (1998) found investment patterns that are consistent with cross-subsidization of segments within diversified firms. Scharfstein (1997) argued that internal capital markets in diversified firms channel resources from high-growth to low-growth segments. Diversification discount is the result of investing too much in some business units and too little in others causing inefficient allocation of capital to projects (Rajan, Servaes and Zingales (2000), Scharfstein and Stein (2000), Scharfstein (1998)). Internal capital market does not improve efficiency of allocation of

scarce funds in the Korean economy since chaebols invest more than non-chaebol firms despite their relatively poor growth opportunities (Shin 1999). Influence cost models suggest that managers of divisions that have a bleak future have an incentive to attempt to influence top management of the firm to channel resources in their direction (Rajan 2000).

Cross subsidization to poor performing segments. In addition to inefficient investment and allocation of resources, diversified firms also maintain divisions that should be dissolved. When stand-alone firms are not profitable and are not able to survive in the long run, they will be liquidated, dissolved or closed down due to natural market forces. However, these inefficient firms might continue to exist as part of a diversified firm because resources from other divisions are used to subsidize their losses despite the reduction in shareholder value (Lamont 1997; Wulf 1998; Rajan 2000; Scharfstein 2000). The subsidy of resources to unprofitable divisions takes away resources that can be better utilize for higher returns at divisions with more growth opportunities, resulting in an disproportional loss in value to the whole firm. Management must have the ability and the system in place to properly evaluate the performance of each division and be able to dissolve divisions when required.

Although cross-subsidization of poorly performing segments is found to reduce firm value, Daley, Mehrotra and Sivakumar (1997) found that the value created from spinoffs are not associated with managers' commitment to avoid cross-subsidization. As a result, there might be an asymmetric condition in which the existence of cross-subsidization reduces firm value, but the removal

of the cross-subsidy does not necessarily leads to an increase in firm value. Desai and Jain (1999) found similar results when they investigated why firms engage in non-focus-increasing spinoffs. They found that firms engage in non-focus-increasing spinoffs to separate poorly performing subsidiaries from their parents. However, while firms that engage in focus-increasing spinoffs experienced significant positive excess return both on announcement date and in the three subsequent years, firms that engage in non-focus-increasing spinoffs do not experience any significant positive excess returns. Maksimovic and Phillips (2002) found that resource allocation decisions are consistent with profit maximization and optimal behavior but no evidence was found that conglomerates subsidize the growth of unproductive segments.

AGENCY THEORY

Jensen (1986, 1993) proposed that there is an agency cost associated with having separate ownership and control due to information asymmetry, with firm shareholders as principals and managers acting as their agents. Two issues arise from information asymmetry. First, there is adverse selection problem in which the information imbalance makes it difficult for shareholders, investors and outsiders to make rational investment decisions based on the firm's and manager's performance. The other issue is the moral hazard problem in which agents act on their own best interest instead of the principals'. The information asymmetry makes it more difficult for the shareholders to detect moral hazard behavior by the managers.

Under the diversification domain, agency problem surfaces through several avenues. First, managers might diversify in order to manage a bigger firm. There is prestige and social status with being the manager of a larger firm (Jensen 1986). The level of compensation is also found to correlate positively to firm size (Jensen 1990). Second, managers can further entrench themselves in the firm as they diversify into industries that they are expert in. The managers are recomposing the nature of the firm such that they become the most suitable person to run the firm, hence further entrench themselves (Shleifer 1986). In emerging markets in which majority shareholders are management of the firms, Fauver, Houston and Naranjo (2003b) and Lins and Servaes (2002) found entrenchment problems with majority owners taking advantages of minority shareholders. Third, since the cash flow of segments are generally imperfectly correlated, the overall cash flow of a diversified firm has less variability than the sum of segments separately. The lower variability of the firm's cash flow also reduces the personal risk of the managers with their relatively undiversified personal portfolio within the firm. Fourth, the personal portfolio approach applies to both the financial holdings of the firms stock as managers and also their personal career investment in a firm. Comment and Jarrell (1995) asserted that diversification reduces employment risk for managers. Fifth, Jensen (1986) asserted that managers of firms with unused borrowing capacity and free cash flow tend to undertake value-decreasing investments. As firms become bigger in size with diversification, there will be more cash flow under the control of management.

Table XX Theoretical Frameworks and their Benefits and Costs

Theoretical Framework	Benefits	Costs
Internalization of firm assets		
Efficiency and synergistic benefits		
Market inefficiency and failures		
Transaction cost theory		
Internal capital markets		
Agency theory		

CHAPTER 3: LITERATURE REVIEW

I have studied about 25 and reviewed another 25 of the most relevant research papers so far. I am contemplating incorporating the literature review into the theoretical framework section later on dependent on the flow and content of these two sections.

This chapter provides a summary of the research findings on the topic of diversification. I will discuss research findings in a rough chronological order relating to the nature of diversification, diversification discount, refocus through spinoffs, international diversification, measurement error, endogeneity factors, and diversification in the emerging markets. I will also discuss research gaps on the current research findings on diversification. Table XX at the end of this chapter provides a summary of the stages of the research findings on diversification and some of the more important research work and their findings on this topic.

Prior to the 1970s, research on diversification was not as numerous as it was over the last twenty years due to the recentness of this development and the lack of good information for research purpose.

Initial research on diversification focused on the benefits of diversification by comparing the share price return of diversified firms against relevant benchmarks. These early empirical research found that diversified firms outperform the market in general. Expand and cite. On the theoretical side,

Lewellen (1971) proposed that diversified firms have higher debt capacities because of the imperfectly correlated earnings and cash flow of various divisions in a diversified firm. The higher debt capacities lead to higher tax benefits and increased firm value. Also cite some of the earlier theoretical research.

NATURE OF DIVERSIFICATION

With the diversification wave in the 1950s and 1960s, scholars were interested in the rationale behind the diversification, the characteristics and costs and benefits of different types of diversification.

The general conclusion was that related diversification performs better than conglomerate type diversification (non-related) due to use of similar skills and resources, economies of scope and effects of reputation (Berger 1995). Rumelt (1974) proposed that diversification affects value more positively than unrelated diversification because skills and resources can be used in related markets. Nayyar (1993) argues that benefits from a positive reputation in an existing business and from economies of scope are available from related, but not from unrelated, diversification.

Efficiency Gains and Synergistic Benefits

Schoar (2002) found, using plant level observations, that conglomerates are more productive than stand-alone firms at a given point in time. Dynamically

firms that diversify experience a net reduction in productivity because while the acquired plants increase productivity, the incumbent plants suffer. He found that this discrepancy may arise because conglomerates dissipate rents in the form of higher wages.

DIVERSIFICATION DISCOUNT

As segment information becomes more readily available, researchers then compares single segment firms with conglomerates and found that there is a diversification discount for conglomerates. During the 1980s and 1990s, most research studies found diversification discount or firm value loss of 10% to 15% (Lang 1994; Berger 1995; Comment 1995; Servaes 1996). Consistent with previous research, the diversification discount is considerably lower for related diversified firms than conglomerates. Many reasons were proposed to be the cause of this diversification discount.

Internal Capital Markets

External financing is expensive relative to internal financing due to information asymmetries. Firms find it more expensive to access outside funds will finance investment through their cash flow from internal capital markets.

Instead of allocating resources efficiently, some research studies found that the inefficient allocation of capital in the internal capital markets caused the diversification discount. (Milgrom and Roberts (1990), Stein (1997),

Scharfstein and Stein (2000)). Many studies found that the internal capital markets allocate internal resources in a suboptimal manner by overinvestment in segments with limited opportunities (based on the segment's low Tobin's q ratio) (Lamont (1997), Shin and Stulz (1998), Shin and Park (1998), Rajan, Servaes and Zingales (2000)) or investing too much in some business units and too little in other business units (Rajan et al (2000), Scharfstein and Stein (2000), Scharfstein (1998)). In other studies, the diversification discount is found to arise from divisions of conglomerates that do not respond adequately to investment opportunities in comparison to single-segment firms (Berger and Ofek (1995), Ofek and Scharfstein (1998)).

Lamont (1997) contended that peripherals of oil industry firms are subsidized by the oil segments when it receives a positive price shock. Shin and Stulz (1998) found that investment of conglomerates' segments is affected by cash flows of other segments within the firm. Scharfstein and Stein (2000) formulated a model that predicts subsidization of weak segments by stronger segments. Expand on these research findings.

Some research studies also found that some segments of conglomerate firms should have been discontinued operation due to continual loss. However, these poorly performing segments were subsidized by the other segments of the conglomerate and became a drain of valuable resources for the conglomerate. Expand on these research findings.

Agency Theory

Some studies found that diversification discount is caused by capital misallocation from inefficient allocation of internally generated funds and poor allocations due to agency problems resulting in cross-subsidization. Diversification discount can also be the results of limitations of the firm's corporate governance structure to curb the manager-owner agency problems.

Rajan, Servaes and Zingales (2000) studied the effects of internal power struggles on the allocation of resources between divisions of a diversified firm and found that the efficiency of the allocation process depends on the diversity of resources and opportunities that each division faces. They assumes in their influence cost model that division managers can engage in high NPV projects whose results can be shared by other divisions and low NPV projects whose results can only be claimed by the originating divisions. When all divisions have similar level of resources and opportunities, divisional managers are willing to undertake the high NPV projects because other divisions will have good results as well and that they would not need to share their results with others. On the other hand, when divisions face dissimilar resources and opportunities, some divisions will be very successful and some divisions will perform poorly each period. In this case, division managers are more likely to select low NPV projects whose results are only available to its own divisions because they do not want to share their benefits with the poorly performing divisions. As all division managers only invest in low NPV projects, the firm value decreases. Hence, their model suggest that whether a segment

receives or makes transfers in a diversified firm depends not so much on its opportunities (proxied for by Tobin's q) as on its size-weighted opportunities, and the way these are dispersed across segments in that firm.

Palia and Ye (2002) found support for the convergence-of-interest hypothesis by finding that the misallocation of resources is reduced when divisional managers have a higher proportion of shares in options. Their findings imply that spinoffs can better align managerial incentives because it allows for the recontracting with the managers in the process.

REFOCUS THROUGH SPINOFFS

Started in the 1990s, conglomerates began to divest their investments in other firms and started to focus on a much smaller number of segments. Scholars became intrigued by the reason of the gyration back to focus after the previous decades of conglomeration. The spinoff process provides an excellent opportunity for the study of changes in firm value when diversified firms divest part of their business.

Spinoffs, divestiture, equity carve-out. Researchers used spinoffs, divestiture, and equity carve-outs to study the effect of diversification on firm value by looking at the share price reaction to divestiture announcements. Generally, event study is used to study the share price reaction on the divestiture announcements. (Lang and Stulz (1994), John and Ofek (1995), Dittmar and Shivdasani (2003), Hite and Owers (1983), Vijh (1994), Daley,

Mehrotra and Sivakumar (1997)). Expand on these research studies. Some researchers also studied share price reaction to equity carve-outs on firm value.

Spinoffs have been used to study diversification and focus because existing shareholders receive proportion shares of the new subsidiary and no cash is involved. The cost base of the asset being spunoff are kept making it easier to compare and evaluate the effect of the spinoffs. The requirement to revaluate assets during acquisitions makes it difficult for researchers because the revaluation introduced uncertainty to the research process. Financial statements are also required to separate out the financial information of the spinoff firm before the actual spinoff itself. Researchers can combine the financial statements of the parent firm and subsidiary post spinoff and compare that to the financial statements prior to the spinoff, making comparison study fairly easy.

Daley, Mehrotra and Sivakumar (1997) studied 85 spinoffs from 1975 to 1991 in the US using event study and found that only cross-industry spinoffs are associated with an increase in firm value after accounting for firm size, industry, and pre-spinoff performance. They also found that most of the value gain accrues to the parent firm, supporting the Corporate Focus Hypothesis that managers can better focus their attention on the core operations that are bested suited for them. Desai and Jain (1999) extended Daley, Mehrotra and Sivakumar's (1997) study and found that the focus-increasing spinoffs outperforms the non-focus-increasing spinoffs over extended periods of three

years. Desai and Jain (1999) also found that firms use non-focus-increasing spinoffs to separate their underperforming subsidiaries from the parents.

Ahn and Denis (2004) found that the sample firms experienced a substantial discount in each of the three years preceding the spinoff announcement. They found that the sample firms are valued at a discount and invest less in their high q segments than do their single-segment peers before the spinoff. Following the completion of the spinoff, the diversification discount is eliminated and there is a significant increase in measures of investment efficiency. Changes in excess value around the spinoff are positively related to changes in measures of investment efficiency, indicating that diversified firms allocate investment funds inefficiently and breaking up the conglomerate through spinoffs can create value by improving investment efficiency. However, they determined that changes in investment policy are unlikely to account for the entire increase in firm value after the spinoff. Other potential explanations include (a) wealth transfers from bondholders (Hite and Owers (1983) and Parrino (1997)), (b) tax and regulatory benefits, (c) facilitation of corporate control transactions (Cusatis et al (1993)), (d) reversal of prior takeover losses, (e) improved contracting efficiency (Hite and Owers (1983), Aron (1991)), (f) enhanced corporate focus (Daley, Mehrotra and Sivakumar (1997)), and (g) reduced information asymmetry.

INTERNATIONAL DIVERSIFICATION

While most diversification study was performed in the US using US based firms due to better data availability and accessibility, some researchers turned their attention to the effects of diversification on other developed countries outside the US. Most of these research studies also found diversification discount in other developed markets, but the findings also highlights the importance of local institutional differences on the diversification discount.

Lins and Servaes (1999) compared diversification discount in Germany, Japan, and the UK in 1992 and 1994 and they found no diversification discount in Germany, 10% in Japan, and 15% in the UK. They found that concentrated ownership by insiders enhances the valuation effect of diversification in Germany, as the insiders with large ownership stake is able to ensure that best actions are being taken for the firm. They also found that only firms with strong links to industrial group experience diversification discount in Japan most likely due to the forced cross-subsidization of poorly performing divisions. They concluded that international differences in corporate governance affect the impact of diversification on shareholder wealth.

Morck and Yeung (1991) found positive relation between international diversification and firm value but a negative link between industrial diversification and firm value. Bodnar, Tang and Weintrop (1999) found that internationally diversified firms have higher values relative to comparable

single-product domestic firms and product market diversification discount becomes less pronounced after controlling for whether or not the firm is internationally diversified. Feinberg and Phillips (2002) found that multinational firms can apply their specific skills and knowledge internationally and internalize many of the transactions to reduce transaction costs so that they are less affected by host country specific factors. Their findings support the transaction cost theory and also that institutional differences between countries does affect the value of diversification.

Fauver, Houston and Naranjo (2003) investigated the effect of industrial and international diversification on US, Germany, and UK firms. He found that industrial diversification reduces firm value in the UK and US, but not in Germany. US multinationals trade at a discount relative to firms operating only in the domestic market, but international diversification has no effect on firm values headquartered in Germany or UK, implying that value of international diversification depends in part on where the company is headquartered and / or where its products are sold. With international diversification not affecting firms in Germany or the US, they hypothesize that either the relative costs of international diversification is smaller for European firms as the European market is more integrated, or that there are some other factors that explain the relatively poor performance of US multinationals in terms of international diversification. Claessens, Djankov, Fan and Lang (1999) found that diversification has negative effect on firm value in Asia. Expand. Denis, Denis and Yost (2002) found both international and industrial diversification have a negative effect on the value of US multinationals. Expand.

Some research studies also found that global diversification interacts with industrial diversification. Denis, Denis and Yost (2002) found that global diversification (of national markets) increases over time and produces discounts in firm value in same magnitude as industrial diversification, implying that its costs outweigh its benefits. However, they also found that global diversification is positively correlated with industrial diversification at firm level, meaning global diversification complements rather than substitute industrial diversification.

The general conclusion of these international comparative studies was that there is also a discount in other countries relating to diversification. However, there are other factors that influence its extend, confirming that institutional structure factors might play a part in explaining the variations in level of discount for diversification.

MEASUREMENT ERROR

Studies that highlight potential measurement error in the diversification studies are one of the more recent developments in this area of study. There are two sources of measurement errors; the source of data and the measurement of industry performance.

Most of the diversification studies used database like Compustat and Worldscope as their data source. However, Compustat segment data are systematically biased in favor of finding a diversification discount by (Harris

1998; Villalonga 2000). Potential errors from the data source include survival bias and self-reporting bias.

Data from database like Compustat might have survival bias because diversified firms should have a greater likelihood of survival than single segment firms. When single segment firms underperform, the firms will need to obtain resources to continue operation, hence subject itself to the scrutiny of the capital providers in the market. As a result, single segment firms have a greater possibility of going out of business because it has no readily available alternative source of internal financing other than cash flow from its own operation. On the other hand, underperforming segments can obtain internal resources to continue operation and bypass the requirement for external scrutiny when obtaining resources. Since poorly performing single segment firms are likely not to survive, and poorly performing segments of diversified firms are likely to remain in business, the single segment firms in the database should over-present the above-average performers while the diversified firms should contains underperforming segments that might reduces their performance.

Some researcher also found that Compustat distorts the extent of the diversification discount since segment accounting standards allow managers to group together different industries into one segment. Schoar (2002) found that Compustat understate the true extent of conglomeration. Villalonga (2000) reported three fundamental limitations of reliance on reported business segments. He reported that the segments reported are less than the true extent of firm diversification, segments are sometimes aggregated and

inconsistently reported between firms due to its self-reporting nature, and some industries are fundamentally composed of segments of diversified segments. Chang and Yu (1999) predicted that diversified firms might sell at a premium because of better access to capital market because of their lower asymmetric information and liquidity discount. Whited (2001) shows that noise in estimate of segment q can account for evidence of capital reallocations. He also found support that the inefficient allocation of resources can be explained by measurement error. Expand. Mansi and Reeb (2002) proposed the risk-reduction hypothesis of corporate diversification by formulating equity value as options on remaining value of the firms after other capital providers. Diversification reduces firm risk and lower volatility reduces the value of the equity options. But this reduction in value of the equity options is offset by an increase in value of the debt due to lower risk. There is a transfer of wealth from shareholders to bondholders and the total firm value remains unchanged. Previous research studies have used the book value of debt and that might underestimate the value of the firm. Lamont and Polk (2001) also pointed out several possible measurement errors on diversification discount due to cash flow and discount measurements. Expand.

ENDOGENEITY FACTORS

Another recent development in the study of diversification on firm value is that endogeneity factors might account for both the decision to diversify and the diversification discount. In other words, diversification and the discount are both symptoms of other factors.

King, Datton, Daily and Covin (2004) examined variables that do not affect post-acquisition performance like type of acquiring firm, relatedness of business, method of payment, and prior acquisition experience. They concluded that there are other pending unidentified explanatory variables that explain the variance in post-acquisition performance. Chevalier (2000) and Graham, Lemom, and Wolf (2000) found that certain conditions that explains for the diversification discount already exist prior to the merger. Chevalier (2000) found evidence of cross-subsidization and similar investment behavior between firms even before their merger, reducing the explanatory power of cross-subsidization and these investment behavior for the diversification discount. Graham, Lemmon, and Wolf (2000) found that about half of the diversification discount of the merged entity is due to the discount at which target firms traded before they were acquired by conglomerates. Both studies pointed to the diversification discount being partially explained by firms purchasing lower-valued firms that are already trading at a discount. Campa and Kedia (1999) also found that firms are discounted prior to diversifying and there is a selection bias. Campa and Kedia (2002) found a link between diversification and value that is not causal but rather is a result of endogenous firm choices. Expand. Fluck and Lynch (1999) present a theoretical model in which low-value firms diversify but still trade at a discount to single-segment firms, even though the diversification creates value.

Maksimovic and Phillips (2002) studied over 50,000 firms between 1974 and 1992 using plant level data and found that conglomerate firms do allocate resources efficiently in a profit maximizing manner. They were able to study

the productivity of each segment individually together with the opportunities that each segment faces. Previous studies on diversification discount had implicitly assumed that single segment and conglomerate firms have similar ability to compete and exploit market opportunities, and that there is no comparative advantages between firms. They found that diversification discount is caused endogeneously by differences in underlying firm organization and managerial abilities (like fundamental industry factors and individual segment level productivity), single segment and conglomerate firms do not face the same investment opportunities, and plants in the larger segments of conglomerate firms are more efficient than plants in the smaller segments. They found that the optimal number and size of industry segments a firm operates depends on its comparative advantage across industries as firms that are very productive have higher opportunity costs of diversifying. Positive demand shocks also affect segments differently dependent on its productivity. A conglomerate will shift resources to the segment of which it has comparative advantage in production after a positive demand shock. It might appear that the conglomerate is subsidizing one segment with another in other researches. However, since they are able to evaluate the investment opportunity set that each segment faces, they were able to conclude that resources are actually going to segments with the most comparative advantages from those that are comparatively disadvantaged. Complementary to their 2002 study (Maksimovic 2001), they found that most transactions for assets resulted in productivity gains, suggesting that assets are sold to firms with the most ability to exploit firm specific comparative advantages. Firms sold their peripheral segments to firms that are more

productive in the industry, and will appear to be selling segments to gain focus which was found in other research studies.

DIVERSIFICATION IN THE EMERGING MARKETS

While most of the existing diversification research focuses on firms in the US or developed markets, effects of diversification on firm value in the emerging markets is being tested as more and more firms are expanding overseas into the emerging markets for both their capacities as manufacturers and consumers. Firms face a very different set of political, economical, legal, cultural, and business environment in the emerging markets, necessitating a new sets of strategies. Firms also have their own sets of internal characteristics and how they interact with their external environment. Market inefficiencies and failures have been discussed in the earlier section Market Inefficiencies and Failures.

In terms of emerging markets, each country is different and firms will have to cope with each country's own set of characteristics. Research (La Porta, etc.) has found that emerging markets are very different and firms are affected differently. Lins and Servaes (1999) found that the effect of diversification on firm value is different across countries and the institutional structure of a country plays a large role providing a source of variations in international comparisons (Khanna 2001) and in determining the value of diversification on firm value (Lins 1999).

The main source of differences in the emerging markets mainly comes from their market inefficiencies and failures. Generally, emerging markets are characterized by more severe market imperfections, undeveloped or under-developed capital markets for raising of funds, weaker disclosure and reporting requirements, less effective corporate governance mechanisms, poorly developed market for corporate control (La Porta et al (1997 and 1998)) (Khanna 2000), and high transaction costs.

Fauver, Houston and Naranjo (2003?) concluded in their research that the effects of diversification on firm value are related to the level of capital market development, international integration, and the local legal systems. The optimal organizational structure and corporate governance may be very different for firms operating in emerging markets than they are for firms operating in more developed and internationally integrated countries. They found that diversified firms experience either a significant diversification premium or no diversification discount in countries where capital markets are less developed and are segmented from international capital markets. In addition, diversification discounts are largest among countries where the legal system is of English origin, which provides the best protection to capital providers. All of his findings are consistent with the usefulness of diversification in markets where inefficiencies exists to a larger degree.

Claessens, Djankov, Fan and Lang (1998) found positive relationship between per capita GNP and valuation effects of both vertical integration and related diversification in a study of 9 East Asian countries in 1991 to 1996 period. Lins and Servaes (2002) found discount of 7% for diversified firms in

seven emerging markets which are caused by possibility of management expropriation. While diversified firms also less profitable, they found that there is no discount due to diversification or inefficient allocation of resources from the internal capital markets.

Khanna and Palepu (2000) found that there is no evidence of diversification discount for Indian firms belonging to a business group. However, they did find a quadratic relationship between firm performance and affiliated group diversification – performance is the same when level of diversification is low, performance is worse at medium level of diversification, and better performance when level of diversification is high. Khanna and Rivkin (2001) also found that business groups are formed as responses to market failures and high transaction costs. Membership in business group could increase or decrease performance of the firm, and members of the group are likely to perform more similarly to other group members. They found that business group member raises profitability of the member firms generally which implies a diversification premium in the emerging markets.

Lins and Servaes (2002) found contradictory evidence of the benefits of internal capitals allocation in the markets with severe capital markets imperfections. They found that diversified firms in emerging markets are discounted only when they are part of industrial groups. This finding is contradictory to the notion that firms belonging to an industrial group should benefit from better internal capital allocation and have a diversification premium.

Kim and Singal (2004) developed a model of business groups in the emerging markets in which banks cannot accurately distinguish between good (high productivity) and bad (low productivity) borrower firms. Hence, it provides low productivity and risk-averse firms incentives to form business groups in order to obscure its performance with other group members from the banks' scrutiny, to dilute information to the banks, and to maximize the probability of a full bailout (or minimize the probability of liquidation). Since the banks cannot isolate the low productivity firms within business groups, its only course of action is to bailout the whole business group in order not to risk eliminating the high productivity firms in the business group. A moral hazard problem arose once management form business group for this purpose.

Table XX Research Findings on Diversification

Stage of Research	Major Research Studies	Findings
Nature of diversification		
Diversification discount		
Refocus through spinoffs		
International diversification		
Measurement error		
Endogeneity factors		
Diversification in the emerging markets		
Research gaps		

THE RESEARCH GAP

Previous research studies on diversification have generally found diversification discounts indicating higher costs than benefits, inefficient allocation of resources with the internal capital markets, or agency problems.

Although there are recent evidence of measurement errors and endogeneity factor explanation, a diversification discount appears to be the most accepted view of diversification on firm value. However, most of the studies are performed using companies in developed markets and studies using firms in the emerging markets have produced inconsistent results. Most of these studies of the emerging markets looked at the differing nature of the institutional framework as the main reason for the different outcome on the effects of diversification on firm value (cite).

In the emerging markets, the institutional environment is less developed and market inefficiencies are common and prevalent. In addition, local markets in the emerging countries are usually much smaller and firms can easily reach their maximum growth potential in the local markets. In this study, I hypothesize that diversification will add incremental value to firm valuation if diversification (1) provides market power to the firm to overcome market failures and inefficiencies, or (2) enables the firm to expand demands locally and / or overseas when growth of existing local demand is close to saturation.

Market Power

Market power achieved through diversification can result in excess firm value in the emerging markets. Accrued market power can help firms overcome market failures and inefficiencies. Expand using points from the Market Failures and Inefficiency section. Firms can also engage in anti-competitive

behaviors as described by Villalonga (2002) to drive out competition and earn monopoly profits.

Expand Saturated Demand

While previous research studies used US based firms, the size of the local market is less of a concern because of the US's larger total market size. Firms in the US can generally continue to achieve growth by focusing on their existing product markets and not reach saturation point. However, markets in the emerging markets are much smaller. As a result, firms can easily reach their full growth potential if they are only local in scope. So when a firm reaches its maximum achievable growth potential locally, it might be beneficial for firm value for the firm to diversify into other businesses or into other countries.

CHAPTER 4: DATA COMPILATION

Our main goal of this research study is to fill in the research gap to determine if diversification is beneficial for firms in the emerging markets due to certain institutional structural variables like ability to accumulate and exercise market power and expansion through diversification when local market reaches saturation. The first step in the data compilation process is to identify and select a source of data from which firm factors can be collected. Information on focused and diversified firms from developed and emerging markets are collected from this data source. The firms in the data set is then screened and selected for statistical analysis. Descriptive statistics are then provided on this data set for information purposes.

DATA SOURCE

The first step in the data compilation process is to identify and select a source of data for statistical analysis. There are primary sources of data and secondary sources of data.

I can collect primary data from all firms in the developed and emerging markets for this research by contacting all the firms directly and collecting the required information using data collection techniques like questionnaires, online surveys, interviews, or observations. While primary data may be more suitable for certain types of research projects and more accurate on certain types of information, its disadvantages preclude its use for this research

study. Disadvantages of using primary data include the time and efforts required to contact all the firms, the low response rate, potential bias in response, the difficulty in normalizing the various accounting and reporting standards between countries, difficulty of duplicating the results, and reduced generalizabiity to other firms.

Secondary data can also be used to obtain the required information for this research. Benefits of using secondary data sources include ease of information collection, availability of historical information, ease of duplicating the sample, objective and comprehensive collection and tabulation process as reporting is required by securities and government authorities, and consistency with use by previous research studies. Disadvantages of using secondary data sources include concerns about completeness of firms in the database, potential selection biases for inclusion in the database, and incompatibility in data collection and compilation process making the data inconsistent across databases.

There are various secondary sources of informational databases available from firms like Thomson Financial, Standard & Poor's, and Datastream. Standard & Poor's Compustat is the most commonly used database for diversification studies on US based firms; Thomson Financial's Worldscope is the most commonly used database used for diversification studies within an international context.

For this research, Thomson Financial's Worldscope database is used for several reasons. First, it is one of the most comprehensive publicly available

database for firms in the developed and emerging markets. Worldscope covers about XXX firms in XXX countries. Second, Worldscope's information post-1994 is relatively comprehensive and it contains most of the firm specific information that is required for this research. Third, Worldscope was used in most of the previous research studies on diversification in emerging markets. Fourth, I will validate my methodology and the data set by re-performing some of the previous research studies and compare results using the more current data set. This validation process requires the use of a consistent source of database.

The Worldscope database does have certain limitations and shortcomings. First, some researchers found that the Worldscope coverage for emerging markets before 1994 was poor and focuses on large companies only (Lins 2002). Second, business segment data was available only since 1991 and geographical segment data is primarily available only for the most developed markets (Fauver 2003). Third, the business and geographical segment information are provided separately with no cross-sectional data available. It implies that each geographical region has the same segment sales. Fourth, business and geographical segment data are self-reporting and there are potential reporting problems with this format. For example, firms might allocate their overhead costs or change segment classification arbitrarily from year to year (Shin 1999). Hyland (1999) and Pacter (1993) documented differences between the Compustat segment data and the firms' actual operating divisions (Maksimovic 2002) and the same reporting issues found in Compustat might also appear in Worldscope.

For this study, the CD rom version of the Worldscope database dated January 2003 is used. Starting in January 2004, the Worldscope database has migrated to an online format and the CD rom version is no longer available. While the online version is updated every two weeks and hence can provide more up-to-date information, I have elected to use the latest CD rom version available for several reasons. First, the CD rom version is more suitable to "freeze" the time frame of which the data is obtained. The online version is updated continuously, making it difficult to duplicate or verify the information. There might also be discrepancies when information are retrieved at different dates. Second, due to the recent implementation of the online database, there are discrepancies between the online and the CD rom versions of the database. Table XX below lists the variables that are being retrieved from the Worldscope database.

Table XX Firm Information Retrieved from Worldscope Database

Nature of Information	Information	
Firm Information	Firm name Firm address Firm country Business description Ticker symbol Exchange	Indices Years of reporting Fiscal year end Auditor Auditor's report Inactive
Segment Information	Primary SIC code SIC codes Industry class Major industry group Product lines Foreign business statistics	Product segment data on sales, operating income, asset, capital expenditure, depreciation Geographic segment data on sales, operating income, asset, capital expenditure, depreciation
Financial Information	Years of reporting Balance sheet Income statement	Statement of cash flow Supplementary data
Ownership Information	Current outstanding shares Officers Ownership	Common shares traded Closed held shares
Other Financial	Exchange rates	

DATA SELECTION AND SCREENING

The initial set of firm data obtained from the Worldscope database was screened according to selection criteria consistent with previous diversification studies. See Table XX for summary of the firm data set for the screening process.

First, full set of firm data for all countries is downloaded from the Worldscope database. The data set will have each set of observation under a firm year classification so that if there is information for a firm for five years, then each year will count as one set of observation. This resulted in XX firms in XX countries and XX firm-year observations, which is the full set of firms from the Worldscope database. The downloaded firm data set is randomly checked against other databases for correctness (report checking criteria and results).

Second, private firms are excluded from the firm data set and only publicly traded firms remain (Fauver 2003) (Lins 1999). Calculation of excess firm value requires financial information and market price of the firm's shares. Private firms might not report the necessary financial information and publicly available market price of these firms are unlikely to be available. XX firms from XX countries and XX firm-year observations are excluded from this criterion; there are XX firms from XX countries and XX firm-year observations remaining in the firm data set.

Third, public firms that are not traded on the country's major stock exchanges are excluded (Lins 1999). Generally, major firms will trade on the country's

major stock exchange, and secondary exchange might not have the liquidity or the volume to provide a fair price on the value of the firms' shares. XX firms from XX countries and XX firm-year observations are excluded from this criterion; there are XX firms from XX countries and XX firm-year observations remaining in the firm data set. Table XX below lists the major stock exchanges of each country in our firm data set and the secondary stock exchanges that are excluded (Set up table to show major exchange of each country and exchanges that have been excluded).

Table XX Major and Secondary Stock Exchanges for each Country in the Firm Data Set. Move to Appendix later.

Country	Major Stock Exchange(s) (Included)	Secondary Stock Exchange(s) (Excluded)
United States	New York Stock Exchange American Stock Exchange NASDAQ	
Hong Kong	Hong Kong Stock Exchange	

Fourth, countries with less than 100 firms remaining in the firm data set are excluded. For this study, an industry median market-to-sales ratio (sales multiple) is calculated using firms within the same SIC code. Since there is over XX SIC classification codes, countries with less than 100 firms might not have adequate number of firms within each SIC classification to provide a meaningful sales multiple. With too few firms in each SIC classification, the median might be skewed by. XX firms from XX countries and XX firm-year observations are excluded from this criterion; there are XX firms from XX

countries and XX firm-year observations remaining in the firm data set. For robustness test, the statistical analysis was re-performed with the excluded countries and the results are included in Appendix XX. The analysis was performed using within country SIC classification as benchmark, and the results of including these countries do not qualitatively change the results of the analysis (actually do this set of robustness test? Need to include in robustness test section).

Fifth, firm year observations without all the data available for our study are excluded (Fauver 2003) (Lins 1999) (Lins 2002). Table XX in the Data Source section lists all the required data for each firm year observation. As not all the required data is available for each firm, their inclusion will skew the results of the statistical analysis. XX firms from XX countries and XX firm-year observations are excluded from this criterion; there are XX firms from XX countries and XX firm-year observations remaining in the firm data set.

Sixth, firms with 50% or more of their revenue from financial services (SIC 6000 to SIC 6999) are excluded. Firms in the financial industry have different capital structure and operating characteristics. Since operating income before interest is used as the profitability control variable, inclusion of financial services firms will skew the results of the statistical analysis. XX firms from XX countries and XX firm-year observations are excluded from this criterion; there are XX firms from XX countries and XX firm-year observations remaining in the firm data set.

Seventh, SIC codes with no single-segment firms are excluded because the benchmark median sales multiple cannot be measured (Fauver 2003). XX firms from XX countries and XX firm-year observations are excluded from this criterion; there are XX firms from XX countries and XX firm-year observations remaining in the firm data set.

Eighth, SIC codes with less than four firms are excluded because the number of firms is not large enough to make the medium sales multiple meaningful (Fauver 2003). XX firms from XX countries and XX firm-year observations are excluded from this criterion; there are XX firms from XX countries and XX firm-year observations remaining in the firm data set.

Ninth, the SIC code is matched to the business description from the Worldscope database to check for consistency. If discrepancies are found, the SIC code is corrected to match the business description (Lins 1999) (Lins 2002).

Tenth, firms that do not provide consolidated financial information are tagged for further analysis with robustness test. Firms that are not required to consolidate will inflate the parent firms' sales multiples and the number of single-segment firms (Lins 2002) and La Porta 2002.

Eleventh, firms are dummy classified as single-segment or diversified firms for further analysis with robustness test of the firm value indicator.

Twelfth, number of segments for each firm is recorded for further analysis with robustness test of the firm value indicator. The number of segments is based on sales of the two digit SIC code segments, with the most important segment accounts for less than 90% of total sales (Lins 2002).

Thirteenth, firms are classified as internationally diversified if more than 10% of sales are derived from outside the firm's home country (Fauver 2003).

Fourteenth, countries are classified as developed and emerging based on definition of the International Monetary Fund (IMF) and the Economist magazine (Lins 2002). Describe selection criteria from IMF and the Economist.

Fifteenth, if the actual value is more than 4 times or less than 25% of the imputed value, the firm is excluded (Fauver 2003). The firm is most likely an outlier with special circumstances that might skew the results of the statistical analysis. XX firms from XX countries and XX firm-year observations are excluded from this criterion; there are XX firms from XX countries and XX firm-year observations remaining in the firm data set.

DESCRIPTIVE INFORMATION / UNIVARIANT ANALYSIS

SPSS is used to perform the univariant analysis on the firm data set. Table XX below provides description of the firm data set for each screening criteria.

Table XX Descriptive Statistics on Firm Data Set from Worldscope Database

Screening criteria	# of firms	# of country	# of firm-year obs	Countries included
Full data set	Devlop: 13,462 Emerg: 6,832 Total: 20,294	Develop: 18 Emerg: 17 Total: 35		Developed: Australia (1,375), Austria (135), Belgium (182), Canada (929), Denmark (236), Finland (163), France (1,029), Germany (1,102), Greece (353), Italy (306), Japan (3,499), Netherlands (269), Norway (202), Spain (206), Sweden (360), Switzerland (306), United Kingdom (2,318), United States (492). Emerging: Brazil (424), Chile (195), China (244), Hong Kong (898), India (380), Indonesia (271), Israel (123), Korea (802), Malaysia (844), Mexico (167), Pakistan (111), Philippines (208), Singapore (491), South Africa (584), Taiwan (504), Thailand (404), Turkey (182).
Exclude private firms				Developed: Emerging:
Public firms not traded on the country's major stock exchanges are excluded. See Table XX.				Developed: Emerging:
Countries with less than 100 firms remaining are excluded				Developed: Emerging:
Observations with missing data are excluded				Developed: Emerging:
Firms with 50% or more of revenue from financial services are excluded				Developed: Emerging:
SIC codes with no single-segment firm are excluded				Developed: Emerging:
SIC codes with less than four firms are excluded.				Developed: Emerging:
Firms with actual value more than 4 times or less than 25% of				Developed: Emerging:

firm imputed value				

Descriptive statistics for countries: number of industrial segments, number of international segments, international segment Herfindahl, foreign sales outside country as %, total assets, total capital, leverage ratio (BV of debt / total assets), operating income/sales, capex/sales, ownership concentration (sum of individual and / or institutional ownership holdings that are equal to or exceed 5% of a firm's common stock), market/sales ((MV equity + BV debt) / total sales), # of observations (Fauver 2003).

Table XX List of SIC code as reference

Table XX Emerging and Developed Markets

Total capital is the sum of market value of equity and book value of debt.

Industry-adjusted leverage is the difference between a firm's actual leverage, defined as the ratio of total debt to total assets, and its imputed leverage. Imputed leverage for each of the firm's segments is calculated as the segment's assets multiplied by the industry's median ratio of debt to assets.

Table XX Descriptive Statistics for Sample Data

Country	Developed Markets				Emerging Markets				Total			
Segment	Single		Multi		Single		Multi		Single		Multi	
	Med	Mean	Med	Mean	Med	Mean	Med	Mean	Med	Mean	Med	Mean
Sample characteristics												
Number of firms												
Number of countries (1)												
Sample characteristics at firm level												
Number of industrial segments (2 digit SIC)												
Number of international segments												
Total capital (US$ millions)												
Total assets (US$ millions)												
Total debt to assets												
Industry-adjusted leverage												
Operating income / sales												
Capital expenditure / sales												
Observations												
Sample characteristics at segment level												
Segment sales (US$ million)												
Segment assets (US$ million)												
Negative cash flow segments												
Observations												
Above based on Berger and Ofek (1995) Table 1												
Total assets												
Sample characteristic at geographical level												
Developed vs emerging markets												
Operating income to sales												
SIC codes												

CHAPTER 5: DATA ANALYSIS

The effects of diversification on firm value can be determined by studying the excess firm value due to diversification. Firm value can be measured in three ways. Firm value can be measured using market-based measures, accounting-based measures, or quasi-measures that use both market-based and accounting-based information. Excess firm value can be determined by comparing the actual firm value to the theoretical firm value.

MARKET-BASED MEASURES

Market-based measures entails the use of an objective, arms-length market-based measurement for the value of the transaction. It is assumed that since these are actual transaction amounts and there are willing parties on both side of the transaction, the market-based price is an unbiased measurement of the value of the transaction. The most commonly used market-based measures are share price, share price returns over time, and valuation of firms or assets from transactions resulting in a change in control.

Share price. The use of stock price as a measurement benchmark is one of the most commonly used performance measurement benchmark in finance research studies due to its objectivity and ease of data collection. Under the assumption that market is efficient (cite paper support for semi-strong form of efficiency), stock prices should incorporate and reflect all publicly available

information (i.e. the semi-strong form of market efficiency) and represent the most object measure of a firm's value at a specific point in time. Since the share price reflects all future cash flows of the firm discounted at the appropriate discount rate, it is a forward looking measure of firm value. There are some shortcomings of using share prices. While the market is efficient on average, there might be excessive short term fluctuations due to changes in expectation of future events. Since share prices encompass all information available in the market, researchers will need to segregate and isolate the effects of the variables under study to reduce the noise that is introduced into the research process.

Share prices are also used as input for event studies and some of the shortcomings of using share prices are resolved.

Event studies. Event studies are used to check for abnormal changes in share prices when a sudden and unexpected event, like an announcement, is made. Since the event is unexpected, any abnormal changes in the share price and hence firm value around the dates in which the news is released can be attributed to the announced event. Unexpected changes in earnings, dividends payout, or acquisition and divestiture decisions are commonly studied using event studies.

In event studies, share price movements before and after the announcement date are tracked against market returns to calculate the correlation between the firm's share prices with the general market (i.e. its beta). Then the

announcement date return is compared with the market and the expected returns. Any abnormal share price changes during the announcement period window are assumed to be caused by the market's reaction to the announcement. Since the share price is compared against its beta adjusted value, firm specific factors like industry, profitability, and investment opportunities have been normalized and incorporated into the analysis.

Although event studies are suitable for the study of unexpected announcements, it might not be most suitable for the study of diversification. Since the decision to diversify and its corresponding actions develop over a long period of time, diversification decisions cannot be classified as unexpected. As much of the information is incorporated into the share price gradually over time as actions of the firm is known to the market, the effect on share price on the actual announcement dates is reduced. For example, it has been shown that earnings announcement effect on share prices is more pronounced for early reporting entities than late reporting entities because many of the information about the industry has been reflected on share prices of firms in this industry (cite research). In addition, it is difficult to clearly identify investor's attitudes about diversification by examining an announcement date stock price response. Not only is it difficult to precisely identify a defined event date for diversification, the stock price response might reflect terms of the offer, probability of success, information signaled about opportunities in bidder's core line of business all of which are unrelated to the effect of diversification itself (Berger 1995).

Share price return. Share price can be used as a valuation benchmark for the calculation of returns over a period of time to determine the effect of the event under study. The period used can be daily, weekly, monthly, annually, or even every three years for longer term studies. Longer period returns can be used to evaluate the benefits of long term policies like diversification. It is objective and it can be calculated easily.

The shortcoming of using share price return is that it incorporates all publicly available information in the market, and the effects of the variables under study must be isolated from the effects of other variables. As a result, control variables (e.g. for industry, firm size, growth, profitability, etc) must be used to isolate the effects of the variables under study. However, there is always a risk of unknown mediating variables that affect the independent and the dependent variables under study. The other shortcoming for using share price return is the need to determine an appropriate window for the study of share price returns. This window must be appropriate in length to capture the effects of the variables under study.

Transaction price for acquisition / divestiture and equity carve-outs. Transaction price for change of control of firms or assets in a divestiture / acquisition can be used as a value indicator. The value of the contribution for an equity carve-out can be used to determine the value of the subsidiary. Describe equity carve-outs in more details needed.

The use of transaction price is seldom used for diversification research of the emerging markets for several reasons. First, while there have been a large number of mergers and acquisitions activities in the developed markets, the market for corporate control is still not well developed in the emerging markets. Second, terms of transactions might not be available in emerging markets due to lower transparency, making proper evaluation very difficult. Third, many transactions are based on firm specific synergistic benefits which might not be available to other firms. The benefits of diversification will be overstated for generalization to other firms. Fourth, the use of actual transaction prices for diversification studies might be circular.

Spinoffs. In a spinoff, the parent distributes some or all of its equity ownership in a subsidiary as a pro rata dividend to shareholders, independent companies following the spinoff. There is no cash inflows, changes in ownership, or asset revaluations at the time of the breakup so changes in investment policy following the spinoff are less likely to be caused by changes in financial resources, incentives from equity ownership, or measurement error due to the standardization of investment by asset value (Ahn 2004). As a result, corporate spinoffs were used for the study of refocus strategy on firm value and of the firms' internal capital markets.

Spinoffs are used to relax financial constraints by reducing information asymmetry for easier access to external capital and allowing the separated divisions to choose their own optimal financial policies and corporate structures (Ahn 2004).

Spinoffs are less common in the emerging markets making its use limited for diversification studies. The use of spinoffs might also introduce a selection bias because it focuses on events in which conglomerates are broken up, with a bias sample towards those situations in which investment inefficiencies are most severe, hence limiting the generalizability of findings to the population of diversified firms (Ahn 2004).

ACCOUNTING BASED MEASURES

Accounting-based measures use information from accounting- and reporting-based information like financial statements to evaluate the performance of a firm. The advantages of using accounting-based measures include having an established set of accounting standards for all firms, some degree of standardization in terms of accounting and reporting standards, use of historical information which is more objective, required disclosure of information on a timely basis, some assurance of information accuracy due to its disclosure nature, ease of access as most are public information, a recurring reporting nature so time series analysis can be performed, and wide spread use and familiarity of accounting based analytical tools in the finance industry. Disadvantages of using accounting based measures include some flexibility in application of accounting policies and estimates on the part of management, accounting standards that do not properly reflect actual firm conditions, window dressing by management, the use of historical information for accounting purposes making the information not forward looking (Khanna

2000), and difficulty of evaluating large firms with complex consolidated financial reports.

Return on assets, return on equity, return on investments. Commonly used accounting-based measurements include return on assets ("ROA"), return on equity ("ROE"), and return on investment ("ROI"). ROA is used more often in diversification studies and it is calculated as operating profit to total net assets (cite studies using this measurement). Operating profit is used because it shows the profits generated from operation before interest and tax payments. Interest payment relates to the leverage of the firm and tax payment is determined by the tax regimes of the jurisdiction both of which add noise to the operating performance measurement (Khanna 2001). On the other hand, ROA measurement suffers from business cycle effects and it does not consider differences in systematic risk (Benston (1985)) (Khanna 2000). Industries and firms also have their own characteristics which require the use of control variables in order to isolate the effects of the variables under study.

More description on ROE and ROI, why not use them?

QUASI-MEASURES

Tobin's q

Tobin's q are used in many research studies (cite Tobin's q related papers) and it is used to measure the quality of management in managing the productivity of the firm's assets. Tobin's q is calculated as the ratio of the market value of a firm to the replacement value of all its assets. Market value of the firm is the sum of the market value of its equity and debt. Tobin's q measurement of 1 indicates that a firm's market value is equal to its asset's productive output, while a Tobin's q of above one indicates that management is making productive use of the firm's assets. It implies that management is adding some value to the firm as they had made the asset more productive than they are worth.

Despite its theoretical usefulness, Tobin's q is difficult to apply to research studies for several reasons. While the market value of equity can be easily determined, the market values of some debts are difficult to determine if they are not traded frequently. The replacement value of assets under the Tobin's q measurement must take into account a theoretical depreciation of all its assets. In application, Tobin's q is difficult to derive due to the difficulty of segregating assets for depreciation purposes and the complexity of financial reporting today. The use of Tobin's q requires assumptions about rates of depreciation and inflation to estimate the assets' replacement values (Berger 1995). Since the market value of the firm's equity and debt are used, it is

subject to the short term fluctuations due to changes in investors' valuation of the firm's equity and debt. Tobin's q also does not normalize industry specific characteristics despite their large variations (Berger 1995). Calculation of Tobin's q for international firms is also very difficult due to the difficulty of assessing the replacement value for most assets. The replacement value of assets can vary with different assumptions and interpretations of use. For example, firm specific assets can have different valuation dependent on assumptions (cite). Some countries also allow the revaluation of certain assets with special depreciation adjustments which makes the calculation of Tobin's q impossible.

For this research study, I will use a modified Tobin's q firm value measurement which will be discussed in the next section.

MULTIVARIANT DATA ANALYSIS

The statistical software package SPSS is used to perform multivariant analysis to determine the association and the significance between excess firm value (the dependent variable) and factors that are hypothesized to affect the amount of excess firm value in the emerging markets within the context of diversification (the independent variables). These factors include level of diversification, firm control variables, market power, growth of local markets, ownership concentration, and macroeconomic and institutional environments. Ordinary least square regressions will be performed using the firm data set collected from the Worldscope database as described in Chapter 4.

FIRM VALUE INDICATOR – DEPENDENT VARIABLE

Excess firm value is the dependent variable in this research. As discussed in the previous section, firm value can be determined using market-based, accounting-based, or quasi-measures. For this research, I will use a multiplier approach, which is a quasi-measure, to determine the amount of excess firm value. This multiplier approach was proposed by Berger and Ofek (1995) which compares a firm's market value with its "imputed" value which is the sum of its segments as if they are stand-alone single-segment "firms." The imputed value of each segment is estimated using the capital-to-sales ratio (sales multiple) of the medium single-segment firm in each two digit SIC code category.

For robustness test on excess firm value measurement, two other measures of excess firm value are used. The second excess firm value measurement uses a modified Tobin's q calculation which compares the market value of a firm with its book asset value to provide some measure of capacity to generate excess return based on those assets. The third excess firm value measurement compares a firm's ROA with its relevant peers in the same segment to detect excess ROA. These two robustness tests on excess firm value measurement produce qualitative similar results as the multiplier approach. The details of these two robustness tests are provided in Chapter 7.

Multiplier Approach

The multiplier approach to measure excess firm value was proposed by Berger and Ofek (1995) and it was used in many subsequent diversification research studies (list and cite). This approach uses single-segment firms in each SIC code category as benchmark for the valuation of segments in multi-segment firms. A ratio or multiplier of a median single-segment firm's capital to multiplier item is calculated and used to calculate the imputed value of segments in multi-segment firms. This approach assumes that a multi-segment firm is a composite of multiple single-segment firms. If the market value of a multi-segment firm is higher (lower) than the sum of its imputed segment values, then there are benefits (losses) from diversification.

The multiplier approach provides a direct estimate of excess value associated with diversification, and it also allows further investigation of the source of the firm value effects at the segment level (Berger 1995). The use of the median single-segment firm as benchmark also takes into account industry specific factors and time shocks that affect all firms in the excess firm value calculations (Campa 2002) so that the number of control variables required can be reduced.

Three multiples were used in the Berger and Ofek (1995) paper, the capital-to-sales multiple (sales multiple), the capital-to-total assets multiple (asset multiple), and EBIT multiple (EBIT multiple). For this research, only the sales multiple is used due to the lack of segment information on assets and EBIT

from the Worldscope database (Lins 1999). For the calculation of peer firms, an industry is defined at the two digit SIC code level instead of the narrower SIC code used by Berger and Ofek (1995) due to the lack of adequate number of comparable firms in the narrower SIC codes in some countries (Lins 1999).

The excess firm value under the multiplier approach is calculated as:

$$\text{Excess Firm Value} = \ln \left(V \,/\, I(V) \right) \qquad (1)$$

V = firm's total capital calculated as the sum of the market value of common equity, the book value of preferred shares, debt, non-equity reserve, and deferred tax liability in untaxed reserves (Fauver 2003).

$$V = MV_E + BV_P + BV_D + BV_{NER} + BV_{DTL} \qquad (2)$$

I(V) = sum of the imputed values of the firm's segments.

$$I(V) = \sum_{i=1}^{n} S_i \ast \left(Ind_i \left(V \,/\, S_i \right) \right) \qquad (3)$$

n = total number of segments in segment i's firm.

Si = segment i's value of sales used in the valuation multiple.

Indi (V/Si) = multiple of total capital-to-sales for the median single-segment firm in segment i's industry.

The multiplier approach is designed such that an excess firm value factor of above (below) one indicates benefits (discounts) from diversification as the

market values the sum of a multi-segment firm is higher (lower) than the sum of its individual segments.

The detailed procedure to calculate the excess firm value using the multiplier approach is as follows (Lins 2002):

1. Separate firms in the data set into groups using two digit SIC codes and country of firm location.

2. For each group, compute the sales multiple of each firm and use the medium single segment firm's sales multiple as the benchmark.

3. For all firms in each group, calculate the segments' imputed values by multiplying the amount of sales by the benchmark sales multiple.

4. The firm's imputed value is the sum of all its segments' imputed value.

5. Excess firm value is calculated as the log of the ratio of actual market value to the imputed value. See formula of excess firm value calculation (1) above.

6. Firms for which the actual values are more than four times or less than 25% of their imputed values are excluded to avoid biases from outliers in the sample (Fauver 2003).

The multiplier approach and the use of Worldscope as the data source does have its shortcomings. First, the Worldscope database provides segment information on sales and its geographical distribution separately and does not provide a cross-sectional breakdown. Hence it is assumed that all geographical locations have the same proportion of segment sales among its products (Fauver 2003). Second, the median single-segment firms might not

be representative of the characteristics of other firms in the SIC code industries (Whited 2001). Third, using the single-segment firm sales multiple as the industry benchmark implicitly assumes that multi-segment and single-segment firms are the same. They have similar investment opportunities, no comparative advantages between firms, they possess similar ability to compete, firms do not differ in their ability to exploit market opportunities, and that firm-specific organizational capital, assets, and managerial talents are the same across firms and industries (Maksimovic 2002). Fourth, there is a survivor bias in that firms experiencing difficulties move towards industries with better prospects and low exit rate. Since exiting firms have low excess value, their exit will push up the median value of the industry, resulting in a higher imputed value and lower excess value for the remaining firm in the industry (Campa 2002). Fifth, the use of book value of debt might cause distortions in the excess firm value measurement (Whited 2001).

Table XX Descriptive Statistics of Excess Firm Value Using the Multiplier Approach.

	Excess value					
			Quartiles			
	Med	Mean	1st	3rd	STD	Obs
Acutal / imputed value using sales multiple						
Developed countries						
Single segment						
Multi-segment						
Emerging countries						
Single segment						
Multi-segment						
No. of observations						

EXPLANATORY VARIABLES – INDEPENDENT VARIABLES

Multiple measures (King 2004) (Berger 1995) of the explanatory variables are used in the regression analysis. The explanatory variables used are level of diversification, market power, and growth of local market. Control variables are also used to control for firm specific factors.

Level of Diversification

The level of diversification can be measured in numerous ways from simple counting of number of segments to the more complex entropy and concentric measures. The Herfindahl index is used because it takes into account the number of segments and the distribution of sales across these segments (John 1995; Fauver 2003) (Denis 2002) (Khanna 2000). The closer it is to one, the more focus the firm; a single-segment firm will have a Herfindahl index of one. The Herfindahl index is calculated across n business segments as the sum of the squares of each segment i's sales, S_i, as a proportion of the square of total sales:

$$H = \sum_{i=1}^{n} S_i{}^2 \Bigg/ \left(\sum_{i=1}^{n} S_i \right)^2 \qquad (4)$$

There are two types of diversification under study – industrial diversification and international diversification. To measure industrial diversification, a sales-based Herfindahl index, H_{IND}, is used based on industrial segment sales. To

measure international diversification, a sales-based Herfindahl index, H_{INTL}, is used based on international segment sales. There is also an interactive term for industrial and international diversification, $H_{IND} * H_{INTL}$, to measure the effects of having both types of diversification (with coefficient as difference in excess value from single segment local firm) (Denis 2002) (Fauver 2003).

The multivariant analysis is:

$$\text{Excess Firm Value} = a + b_1\, H_{IND} + b_2\, H_{INTL} + b_3\, H_{IND}\, H_{INTL} \tag{5}$$

Other types of diversification measures are included as robustness test. The number of segments, dummy variable used to identify diversification, the entropy measure, and the concentric measure are used as alternative diversification measurements and they provide qualitatively similar statistical results (to confirm after robustness test). The details of the robustness tests are provided in Chapter 7.

Firm Factors

Firm-specific factors should be controlled in the multivariant analysis to account for firm differences due to managerial and resource differences. Firm size, profitability, growth opportunities, financial leverage, intangible assets, and year are controlled for in the multivariant analysis.

The natural logarithm of book value of total assets (Ln (BV_{TA})) is used to control for firm size differences (Berger 1995; Lins 1999; Campa 2002; Lins 2002; Mansi 2002; Fauver 2003; Fauver 2003). The nature of operation, capital structure, and resource availability are different between small and large firms.

Operating income to sales (OpInc / Sales) is used to control for differences in firm profitability (Lins 1999; Lins 2002; Fauver 2003; Fauver 2003). Profitability affects the amount of resources and strategic alternatives available for management. While EBIT was used in many US-based studies (Berger 1995) (Denis 2002) (Campa 2002; Mansi 2002), I will use operating income as it is more suitable for emerging markets because non-operating items can distort the firms' EBIT.

Capital expenditure to sales (Capex / Sales) is used to control for differences in growth opportunities between firms (Berger 1995) (Denis 2002) (Lins 1999; Campa 2002; Lins 2002; Mansi 2002; Fauver 2003; Fauver 2003). The use of capital expenditure to proxy for growth opportunities assumes that firms can only grow by buying equipment to expand (i.e. through internal generic growth). As a result, this control variable cannot capture growth through acquisitions. In the analysis, same industry acquisitions are captured by the market power variable (as the firm becomes a bigger firm within the industry segment) and cross-industry (both related and non-related) acquisitions are captured by the segment sales-based Herfindahl index.

Book value of debt to total assets (BV_D / Total Assets) is used to control for different levels of financial leverage of the firms (Denis 2002) (Mansi 2002). Financial leverage affects the level of firm risk by committing fixed resources each period for repayment. Financial leverage also magnifies the profits and losses of a firm.

Research and development expenditure to sales (R&D / Sales) and advertising expenditure to sales (Adv / Sales) are used to control for internally developed intangible assets from research and development and advertising spending that can translate into higher firm valuations (Denis 2002) (Fauver 2003).

Dummy variables each representing one year (Year) is used to control for intertemporal variations in market or economic conditions that may affect all firm's sales multiple in a country (Khanna 2001; Fauver 2003; Fauver 2003). This control variable will only be used if we are using firm year as units of analysis. If historical segment information is not available, then I will use the latest current year only and this control variable will no longer be needed.

The multivariant analysis is:

$$\textit{Excess Firm Value} = \begin{aligned} &a + b_1\, H_{IND} + b_2\, H_{INTL} + b_3\, H_{IND}\, H_{INTL} \\ &+ b_4\, Ln(BV_{TA}) + b_5\, OpInc/Sales + b_6\, Capex/Sales \\ &+ b_7\, BV_D/Total\ Assets + b_8\, R\&D/Sales \\ &+ b_9\, Adv/Sales + b_{10}\, Year\ dummies \end{aligned} \qquad (6)$$

Other firm factors that should be controlled are included in the robustness test in Chapter 7. These firm factors include differing consolidation standards, use of local versus international sales multiple, use of relative investment ratio (RINV) and relative value added by allocation (RVA) to control for efficiency of investment allocation, lagged values, and inconsistent firm size measurement (Need to update once robustness test finalized).

Market Power

In the emerging markets where markets are less efficient and institutional frameworks less developed, firms can derive positive excess firm value if market power is developed and accumulated. As discussed in Chapter 3, the benefits of diversification can take the form of higher synergistic benefits that can be recognized, reduced transaction costs, reputation spillovers, to monopolistic profits being earned.

For market power, the industry sales-based Herfindahl index is used. The industry is defined at the two digit SIC code level and total industry sales is the sum of all the firms' sales in the within this industry category.

The market power Herfindahl index, H_{MKT}, is calculated across n businesses as the sum of the squares of each business i's sales, S_i, as a proportion of the square of total sales of all firms:

$$H_{MKT} = \left. \sum_{i=1}^{n} S_i^2 \middle/ \left(\sum_{i=1}^{n} S_i \right)^2 \right. \tag{7}$$

The multivariant analysis is:

$$
\begin{aligned}
\text{Excess Firm Value} = \quad & a + b_1\,H_{IND} + b_2\,H_{INTL} + b_3\,H_{IND}\,H_{INTL} \\
& + b_4\,Ln(BV_{TA}) + b_5\,OpInc/Sales + b_6\,Capex/Sales \\
& + b_7\,BV_D/Total\ Assets + b_8\,R\&D/Sales \\
& + b_9\,Adv/Sales + b_{10}\,Year\ dummies \\
& + b_{11}\,H_{MKT}
\end{aligned}
\tag{8}
$$

Growth of Local Markets

Emerging markets generally have much smaller potential for total product sales due to a smaller pool of potential customers. As firms grow, the incremental costs of gaining additional market share become higher. Firms might find that growth and profitability can be achieved more cost effectively if they diversify into other industries or other geographical locations. The lower the industry growth, the higher excess firm value that can result from diversification. Growth rate of the local industry, G_{LM}, is proxied by changes in total industry sales from prior year. The local market demand condition will also be more detrimental to the firm if it is already one of the major firms in the industry. Hence, the largest gain to excess firm value is when the local industry growth rate, G_{LM}, is low and the firm is a major firm in the industry

proxied by high H_{MKT}. To account for the industry growth rate and the firm's position within the industry, an interactive term is used:

$$(100 - 100\ G_{LM})\ H_{MKT} \qquad (9)$$

By reversing the local industry growth rate, G_{LM}, the variable term is expected to be positively related to excess firm value.

The multivariant analysis is:

$$
\begin{aligned}
\text{Excess Firm Value} = \ & a + b_1\ H_{IND} + b_2\ H_{INTL} + b_3\ H_{IND}\ H_{INTL} \\
& + b_4\ Ln(BV_{TA}) + b_5\ OpInc/Sales + b_6\ Capex/Sales \\
& + b_7\ BV_D/Total\ Assets + b_8\ R\&D/Sales \\
& + b_9\ Adv/Sales + b_{10}\ Year\ dummies \\
& + b_{11}\ H_{MKT} + b_{12}\ (100 - 100\ G_{LM})\ H_{MKT}
\end{aligned}
\qquad (10)
$$

CHAPTER 6: RESULTS OF DATA ANALYSIS

RESULTS OF DATA ANALYSIS

CHAPTER 7: ROBUSTNESS TESTS

Robustness tests are used to verify the results of the statistical analysis by ensuring that variables are internally valid (internal validity), plausible explanatory independent variables are not missed, and results are generalizable to other firms outside of the firm data set (external validity).

The following robustness tests are performed in this section: (a) excess firm value measurement using modified Tobin's q and return on assets, (b) level of diversification using dummy variable, number of reported segments, entropy measure and concentric measure, (c) consolidation requirement differences between countries, (d) perform multivariant analysis on developed markets firms and emerging markets firm separately, (e) efficiency of investment allocation using relative investment ratio (RINV) and relative value added by allocation (RVA), (f) ownership concentration for agency problems, (g) local country conditions like macroeconomic and institutional environments, (d) internationally normalized sales multiple, (e) outlier countries, (f) inclusion of countries with less than 100 firms but using the internationally normalized sales multiple, (h) survivor bias (only possible if time series data are available from Worldscope), (j) multivariant analysis year by year then average the results to determine if there are unusual years if the coefficients are different (or take out one year for each analysis for outlier year), (k) use alternative benchmark firms (calculates imputed values using largest single segment firm instead of medium), (l) use of alternative valuation measure using capital to asset or profit if the information is available on a segment basis by Berger and

Ofek (1995), (m) definition of industry using other than two digit SIC code (3 digit or 4 digit dependent if there is adequate firms within each category), (n) robustness of results over time by doing multivariant analysis on sub-periods of time to see if results are the same. This list includes more robustness tests than are actually performed. They might be applied dependent on results of the statistical analysis. Confirm the robustness tests performed and update.

EXCESS FIRM VALUE MEASUREMENT

In the data analysis section, the multiplier approach using sales multiple was used to determine excess firm value. For robustness test, modified Tobin's q and return on assets are used as firm value measurements.

Modified Tobin's q

The modified Tobin's q measurement is used in some of the international diversification research studies to complement the multiplier approach because there are fewer matching firms available in the emerging markets (Khanna 2000) (Lins 2002). The smaller number of firms in each SIC category might result in the medium single-segment firm unrepresentative as the benchmark. The modified Tobin's q resolve this issue by comparing a firm's market value with the book value of its assets.

The modified Tobin's q is calculated as:

$$ModT_q = (MV_E + BV_P + BV_D) / BV_{TA} \qquad (11)$$

$ModT_q$ = modified Tobin's q

MV_E = market value of equity

BV_P = book value of preferred shares

BV_D = book value of debt

BV_{TA} = book value of total assets

With the modified Tobin's q approach, the top and bottom 1% of the firms are removed to avoid skewed results due to outliers (Lins 2002). In addition, country and industry dummy variables need to be used with this approach because they are no longer controlled for (in the multiplier approach, country and industry are normalized as firms are compared to a benchmark derived from a firm in the same industry in the same country.

The multivariant analysis is:

$$\textbf{\textit{Excess Firm Value}}_{ModTq} = \textbf{\textit{same as before}} \qquad (12)$$

The results of the multivariant analysis show that using modified Tobin's q as excess firm value measurement produce qualitatively similar results as the multiplier approach (to be confirmed). The results of the multivariant analysis are shown in Table XX below.

Return On Assets

Return on assets is the third measurement of excess firm value. The return on assets is calculated using operating income so that the effect of firm leverage and different tax rates can be controlled.

A firm's return on assets is calculated as:

$$ROA \quad = \quad OpInc \quad / \quad BV_{TA} \tag{13}$$

ROA = return on assets

OpInc = operating income of the firm

BV_{TA} = book value of total assets

The multivariant analysis is:

$$Excess\ Firm\ Value\ _{ROA} \quad = \quad same\ as\ before \tag{14}$$

The results of the multivariant analysis show that using return on assets as firm value measurement produce qualitatively similar results as the multiplier approach (to be confirmed). The results of the multivariant analysis are shown in Table XX below.

Table XX Comparison of Excess Firm Value Using the Multiplier Approach, the Modified Tobin's q, and Return on Assets

	Excess value		Quartiles			
	Med	Mean	1st	3rd	STD	Obs
Acutal / imputed value using sales multiple						
Developed countries						
Single segment						
Multi-segment						
Emerging countries						
Single segment						
Multi-segment						
No. of observations						
Modified Tobin's q						
Developed countries						
Single segment						
Multi-segment						
Emerging countries						
Single segment						
Multi-segment						
No. of observations						
Return on assets						
Developed countries						
Single segment						
Multi-segment						
Emerging countries						
Single segment						
Multi-segment						
No. of observations						

LEVEL OF DIVERSIFICATION

For our multivariant analysis, industrial sales-based and international sales-based Herfindahl indices and their interactive terms are used to measure the level of diversification. Alternative diversification measures include (a) dummy variable to tag diversified firms (Campa 2002; Fauver 2003) (Denis 2002), (b) number of reported segments (Berger 1995; John 1995) (Denis 2002), (c) the

entropy measure used by Jacquemin and Berry (1979) and Palepu (1985) (Khanna 2000), and (d) the concentric measure used by Caves et al (1980) (Khanna 2000).

Dummy variable can be used to indicate diversified firms. A firm is considered to be diversified if more than 90% of its sales are derived from one business segment within a two digit SIC code. However, the dummy variable's dichotomous nature precludes it from providing a more detailed analysis of the effect of diversification. The number of reported segments can be used to indicate the number of segments that the firms are involved in. Segments with different two digit SIC code are considered separate segments. While this measure provides more information than the use of a dummy variable, this measurement does not take into account the distribution of sales across the segments. The entropy measure - description??? The concentric measure – description???

The Herfindahl index, the entropy measure, and the concentric measure take into account the number of industries in which the group operates, the distribution of sales across these industries, and the degree of relatedness among product segments within each industry (Khanna 2000).

The table below compares the results of the multivariant analysis using the different measurements of the level of diversification.

Table XX   Comparison of Results of Multivariant Analysis Using Alternate Diversification Measurements.

Diversification measures	Sales-based Herfindahl index	Dummy variable for diversification	Number of reported segments	Entropy measure	Concentric measure
Results of multivariant analysis					

CONSOLIDATION STANDARDS

Each country has their own set of accounting standards and reporting requirements. The differences in standards introduce an element of incompatibility to our valuation process since many of our input are based on accounting information. Consolidation requirement is one of the differences between countries that might have a large impact on our analytics because a diversified firm might be shown as several single-segment firms if they are not required to consolidate their operations. To check the effects of different consolidation requirements between countries (Lins 2002), four robustness tests are used.

Consolidation dummy can be used to mark firms that do not provide consolidated information. The consolidation dummy can be included in the multivariant analysis to see if the coefficients of the Herfindahl indices change.

When consolidation is not required, the sales multiple will be inflated. The sales multiple will be inflated because the market value of the parents will include the value of their fractional ownership of the subsidiaries while the sales amounts do not include the subsidiaries' sales. This sales multiple inflation will only affect the parent firms. In addition, the number of single segment firms will be inflated because subsidiaries that should be consolidated are not. In this first accounting standards robustness test, I will exclude firms that do not report consolidated information and re-perform the multivariant analysis (Lins 1999).

Even if consolidation is required, partially-owned subsidiaries are not consolidated if certain ownership level is not met. In this case, the sales multiple will be inflated. The sales multiple will be inflated because the market value of the parents will include the value of their fractional ownership of the subsidiaries while the sales amounts do not include the subsidiaries' sales. To determine the extent of this inflationary effect on the sales multiple due to non-consolidation of partially-owned subsidiaries, I will first review for investments in associated companies on the balance sheet of each firm and mark firms that have ratios of investments in associated companies to total assets above 10%, 5%, and 1%. Then I will eliminate firms with over 10% of investments in associated companies to total assets and re-perform multivariant analysis. I will then eliminate firms with over 5% and then 1% of investments in associated companies to total assets and re-perform the multivariant analysis. By excluding firms with a lower and lower levels of

investments in associated companies to total assets, the effects of this sales multiple inflation can be determined (Lins 2002).

When consolidation requirement exists, partially-owned subsidiaries are consolidated when certain ownership level is met. In this case, the sales multiple will be deflated because while the market value of the parents will only include the value of their fraction ownership of the subsidiaries, 100% of the subsidiaries' sales are included as parents' sales. To determine the extent of this deflationary effect on the sales multiple due to full consolidation of partially owned subsidiaries, I will first review for minority interest on the balance sheet of each firm and mark firms that have ratios of minority interest to total assets above 10%, 5%, and 1%. Then I will eliminate firms with over 10% of minority interest to total assets and re-perform multivariant analysis. I will then eliminate firms with over 5% and then 1% of minority interest to total assets and re-perform the multivariant analysis. By excluding firms with a lower and lower levels of minority interest to total assets, the effects of this sales multiple deflation can be determined (cite study) (Lins 2002).

The table below shows the results of the multivariant analysis using the various robustness tests for different consolidation standards.

Table XX   Comparison of Results of Multivariant Analysis to Account for Differences in Consolidation Requirements Between Countries.

	Multivariant analysis	Consolidation requirement differences	Difference
Consolidation dummy			
Exclude firms that do not report consolidation results			
Partially-owned firms but do not consolidate			
Investments in associated companies			
10%			
5%			
1%			
Partially-owned firms that are consolidated			
Investments in associated companies			
10%			
5%			
1%			

SEPARATE ANALYSIS OF FIRMS IN THE DEVELOPED AND EMERGING MARKETS

The institutional framework and the economic and political environments are very different between developed and emerging markets. In this robustness test, firms from the developed markets and firms from the emerging markets are analyzed separately so that firms are compared to firms that are more similar to themselves.

Review of results of analysis. The results of the multivariant analysis are provided in Table XX.

Table XX   Comparison of Excess Firm Value for Firms in the Developed

Markets and Firms in the Emerging Markets

	Excess value					
			Quartiles			
	Med	Mean	1st	3rd	STD	Obs
Acutal / imputed value using sales multiple						
Developed countries						
Single segment						
Multi-segment						
No. of observations						
Emerging countries						
Single segment						
Multi-segment						
No. of observations						

Table XX Comparison of Results of Multivariant Analysis Between Developed

and Emerging Countries.

Independent Variables	Original Results	Developed Countries Only	Emerging Countries Only
Sales-based Herfindahl index			
Firm size			
Profitability			
Growth Opportunities			
Year			

EFFICIENCY OF INVESTMENT ALLOCATION

Firm value will increase when management allocates firm resources efficiently and it is one measure of quality of management. Quality of management could be an endogeneity factor such that excess firm value are created when management spend more time evaluating and scrutinizing. However, the time available for analysis is reduced when a firm starts to diversify, resulting in the observed diversification discount.

The efficiency of resource allocation can be measured using the relative investment ratio (RINV) and relative value added by allocation (RVA). RINV is defined as the sales-weighted sum of firm-and industry-adjusted investment in high-q segments minus the sales-weighted sum of firm and industry adjusted investment in low-q segments (Ahn 2004); RVA is defined as the weighted firm and industry-adjusted segment investment by the difference between the industry median Tobin's q for that segment and the sales-weighted average q for the firm (Rajan et al 2000).

RINV is calculated as:

$$RINV = \frac{\sum_{i=1}^{k} S_i (I_i/S_i - (I/S)_i^{ss} - \sum_{i=1}^{n} w_i (I_i/S_i - (I/S)_i^{ss})) - \sum_{i=n-k+1}^{n} S_i (I_i/S_i - (I/S)_i^{ss} - \sum_{i=1}^{n} w_i (I_i/S_i - (I/S)_i^{ss}))}{TS} \quad (15)$$

RVA is calculated as:

$$RVA = \frac{\sum_{i=1}^{n} S_i (q_i - q)(I_i/S_i - (I/S)_i^{ss} - \sum_{i=1}^{n} w_i (I_i/S_i - (I/S)_i^{ss}))}{TS} \quad (16)$$

Ability to perform this robustness test depends on the availability of segment

data on capital expenditures.

Table XX Effects of Diversification on Excess Firm Value by Year.

	Excess value	(Year)				
	1995	1996	1997	1998	1999	2000
Acutal / imputed value using sales multiple						
Developed countries						
Single segment						
Multi-segment						
Emerging countries						
Single segment						
Multi-segment						
Modified Tobin's q						
Developed countries						
Single segment						
Multi-segment						
Emerging countries						
Single segment						
Multi-segment						
Return on assets						
Developed countries						
Single segment						
Multi-segment						
Emerging countries						
Single segment						
Multi-segment						
No. of observations						

Table XX Effects of Diversification on Excess Firm Falue by Firm Size (TA =

total assets in millions US$).

	Excess value			
	TA<50	50<TA<150	150<TA<500	TA>500
Acutal / imputed value using sales multiple				
Developed countries				
Single segment				
Multi-segment				
Emerging countries				
Single segment				
Multi-segment				
Modified Tobin's q				
Developed countries				
Single segment				
Multi-segment				
Emerging countries				
Single segment				
Multi-segment				
Return on assets				
Developed countries				
Single segment				
Multi-segment				
Emerging countries				
Single segment				
Multi-segment				
No. of observations				

CHAPTER 8: DISCUSSIONS AND IMPLICATIONS

DISCUSSION AND INTERPRETATION OF RESULTS

CONTRIBUTIONS AND APPLICATIONS

STRENGTHS

WEAKNESSES

SUGGESTIONS FOR FUTURE RESEARCH

APPENDICES

To be prepared.

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