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# CAN CORPORATE DIVERSIFICATION PROMOTE FIRM VALUE? A SURVEY

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**Abstract:** This paper performs a rigorous survey of existing measures of diversification and fills a number of missing gaps between the theoretical and empirical literature surveyed by previous authors. In addition, the study outlines the areas where future work is possible and in which direction researchers may advance their thoughts. A detailed discussion on the various methodologies employed by earlier researchers and their findings are presented. This survey indicates that there is further scope for development of new theories and the empirical literature suggests that there is scope for development of new measures of diversification.

*Keywords:* corporate diversification, firm valuation, discount, premium

*JEL Classifications:* G30, G34.

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## **1. Introduction**

Does corporate diversification increase the value of a firm? US experience has shown evidence both in favour of and against firm diversification in the twentieth century. During 1950s and 1960s, diversification was a common trend for many US corporations. This trend continued until the 1980s and then it reversed dramatically when corporations started specialising (Leibeskind and Opler, 1993; Comment and Jarrell, 1995). While this positive trend towards diversification in 1960s shows gains in firm value out of diversification (resulting in diversification premium), the reverse trend during 1980s indicates a loss for others (resulting in diversification discount).<sup>1</sup>

The literature of corporate diversification and the puzzle surrounding whether diversification gives rise to discount or premium, was previously surveyed by three prominent articles: Martin and Sayrak (2003), Stein (2003) and Maksimovic and Phillips (2007). Martin and Sayrak (2003) survey the literature on corporate diversification through two separate channels: cross sectional studies of the link between corporate diversification and firm value on one hand and longitudinal studies in patterns of corporate diversification through time on the other. Their survey suggests that diversification discount may not be the result of corporate diversification after all. In contrast, diversification discount may result from measurement issues or simply because of sample bias. Stein (2003) studies the strand of literature which questions the efficiency of corporate investment in the presence of asymmetric information and agency problems. His focus was mainly on the literature, which addresses the issue of efficient capital allocation across firms through external capital markets and within firm allocation of capital through its internal capital market.

Lastly, Maksimovic and Phillips (2007) survey the various theoretical aspects of diversification. Their findings suggest that although earlier literature claimed that the diversification discount is a result of inefficient capital allocation in internal capital market, more recent empirical literature shows that diversification discount can be explained through self-selection of firms with different investment opportunities. Further their survey indicates that diversification discount may not be the result of conglomerate diversification, however can arise due to capital budgeting process of profit maximising firms.

These surveys, even though comprehensive, have number of shortcomings: Firstly, they focus on isolated issues related to corporate diversification and do not provide a detailed discussion on various existing theories of firm diversification and their corresponding

empirical findings in recent times. Secondly, although previous studies have indicated the need for developing better measures of diversification, they have not suggested any possible solution. Thirdly, it is apparent from the previous surveys that agency theory and internal capital market play a very important role towards diversification discount/premium. However, the studies fail to point out the possible relation that may exist between CEO and division manager remuneration and diversification discount/premium. Finally, they fail to point out any importance of corporate reforms on firm value.

This paper performs a rigorous survey of existing measures of diversification and suggests some additional measures, which may succeed in solving the measurement issues related to diversification. The paper shows how corporate reforms may be taken into account as a factor of firm performance. In addition, the study outlines the areas where future work is possible and in which direction researchers may advance their thoughts. Overall, the paper fills a number of missing gaps among the earlier surveys and shows the link between the theoretical and empirical literature. Section 2 provides a detailed discussion on the evolution of the theories that were put forward to justify either diversification discount or premium. Examples are provided wherever applicable to provide evidence in support of the theories. Section 3 surveys the empirical literature, which tests whether diversification discount or premium exists in firms. In particular, focus is placed on the data and methodology used by different authors in explaining diversification discount or premium. Section 4 discusses further scope of research in the literature and Section 5 concludes the discussion on the value effect of diversification.

## **2. Theoretical Background**

Diversification discount or premium is explained by various costs and benefits arising from corporate diversification. The costs arising from corporate diversification are theoretically justified by agency arguments (Amihud and Lev, 1981; Jensen, 1986; Shleifer and Vishny, 1989; Jensen and Murphy, 1990), inefficient investment due to rent-seeking activities (Scharfstein, 1998; Scharfstein and Stein, 2000; Rajan *et al.*, 2000; Choe and Yin, 2009), and by more recent theories that suggest the existence of a discount is consistent with the value maximising behaviour of the firm (Fluck and Lynch, 1999; Zuckerman, 1999; Burch *et al.*, 2000; Matsusaka, 2001; Gomes and Livdan, 2004). Similarly the benefits of corporate diversification, which give rise to diversification premium, can originate from the theories of an efficient internal capital market (Williamson, 1975; Williamson, 1970; Gertner

*et al.*, 1994; Stein, 1997), debt coinsurance (Lewellen, 1971; Shleifer and Vishny, 1992), economies of scope (Teece, 1980; Teece, 1982) and market power (Scott, 1982; Tirole, 1995; Villalonga, 2000).

## ***2.1. Costs of Conglomerate Diversification: Diversification Discount***

This section provides a detailed discussion of the theoretical literature which supports the argument that corporate diversification leads to diversification discount. The various arguments are as follows:

### *2.1.1. Agency Theory*

The most widely discussed theory is the ‘Agency theory’ that views diversification discount as the product of agency problems between managers and shareholders. Managers often undertake activities to increase their own welfare at the cost of shareholders. Jensen (1986) argues that managers have a tendency to acquire and manage resources which are suboptimal in size. This is because managing such oversized resources gives them private benefits of control. These private benefits are increased power and prestige of the manager. Jensen (1986) provides evidence from the US oil industry in 1970s and early 1980s to show that managers indeed undertook such activities which ultimately led to value loss of diversification. Furthermore, managers have a tendency to ‘entrench’ themselves, i.e. to make themselves valuable to the shareholders or make themselves so indispensable to the firm that it becomes very costly to replace them.

Shleifer and Vishny (1989) build a formal model for managerial entrenchment and show that managers have a tendency to invest valuable firm resources or shareholder wealth into manager specific assets even if such investments are not value maximising for the firm or its owners. Shleifer and Vishny (1989) provide an example of managerial entrenchment through investment in railroad by a CEO. They show that the CEO of a railroad with large free cash flow is faced with the choice of either to invest in upgrading the railroad or to raising dividends. If the CEO commits to the former then he is able to extract resources in the form of wages and perks. This would be much larger compared to the resources he can extract if he raised dividends. Thus the CEO invests in the railroad and makes himself more firmly entrenched even if it is not a value-maximizing strategy. Shleifer and Vishny (1989) measure the degree of entrenchment by observing how specific the assets are to the existing manager’s skills and knowledge. The managers reduce the probability of getting fired or improve their bargaining position with regards to wages by undertaking such entrenchment

activities. They further argue that managerial entrenchment is not always value maximising for the firms and provide evidence of managerial resistance to takeovers, wealth-decreasing investments in oil exploration and wealth decreasing acquisitions by managers with low ownership stakes.

### 2.1.2. *Inefficient Internal Capital Market*

Another way to explain diversification discount is through inefficiencies arising in corporate organisations owing to rent-seeking activities or influence activities by division managers.<sup>2</sup> Other than influence activities, expressions for rent-seeking activities are safeguarding activities (Williamson, 1985) and power-seeking activities (Rajan and Zingales, 2000). Wulf (1999), Rajan *et al.* (2000) and Scharfstein and Stein (2000) formalise this idea that the division managers undertake wasteful rent-seeking activities in an internal capital market<sup>3</sup> to influence the CEO or headquarters to give them more funds or internal capital than is optimal. This in turn leads to inefficient allocation of resources, which destroys firm value.

Wulf (1999) uses a basic moral hazard model to show that influence activities in the form of signal jamming<sup>4</sup> lead to inefficient capital allocation across divisions. In her model the chief duty of the headquarters is to allocate capital across divisions in order to maximise the value of the firm. There are two types of divisions within the firm. One is a smaller less established division of unknown returns under the supervision of a manager with limited tenure within the firm. This division can be thought of to represent newer businesses of the firm. The manager of the smaller division cannot influence the distribution of capital by headquarters. The other division is a large established division with known returns. It could be thought of as the core business of the firm. The problem arises due to the varied objectives of the headquarters and the division managers. The Headquarters' objective is to maximise the value of the firm whereas division managers prefer a larger budget. The manager of the larger division has more power to influence the decision making process within the firm. The headquarters relies on the information given by the division manager of the larger established division (private signals) and the observable characteristics about the small division (public signal) to decide how much capital to allocate to the smaller division. Influence activity by the larger division manager also involves a cost on the part of the headquarters. The problem that originates between the headquarters and the division managers can be characterised as a standard moral hazard problem. The headquarters cannot observe whether the large division manager chooses to influence the private signal or not but it can design contracts, which can either deter or allow influence activities by large division managers.

Scharfstein and Stein (2000) explain the inefficient cross-subsidisation of resources in internal capital market with the help of a two-tiered agency model. Inefficient cross-subsidisation occurs when more than the optimal amounts of resources are allocated to some divisions of a conglomerate whilst less than required are provided to others. In their model the CEO of a multi-divisional firm is an agent of outside investors. His job is to hire and retain division managers. He also possesses the authority to re-allocate internal funds and resources across various divisions of the firm. The division managers on the other hand not only participate in productive activity but also engage in wasteful rent-seeking activity<sup>5</sup> to increase their bargaining power with the CEO for obtaining higher compensation. In addition, the manager of the weaker division does more rent-seeking since his opportunity cost of time is lower than the manager of the stronger division. The outside investors would prefer the CEO to use the cash flows generated by different divisions of a conglomerate as extra compensation that has to be paid out to the division managers. However the CEO derives private benefits from the cash flows generated by the firm and prefers to pay the division managers with capital budget.

Inefficient cross-subsidisation occurs in internal capital market in two ways. Firstly the outside investors have no means to enforce the CEO to pay the extra compensation to division managers in the form of cash and hence investment can get distorted. Secondly, since the manager of the weaker division engages more in rent-seeking activity, the CEO diverts more capital budget towards the weaker division and less towards the stronger division, which would subsequently generate lower value for the conglomerate. McNeil and Smythe (2009) find evidence that managers with more lobbying power represented by tenure, seniority and board membership always manage to get more capital even if they are in charge of a weaker division. This is consistent with the theory proposed by Scharfstein and Stein (2000).<sup>6</sup>

Rajan *et al.* (2000) develop a new theory, which describes the rent-seeking activity as forms of power struggle<sup>7</sup> within a company. Further they propose that the driving force behind inefficient allocation in a diversified conglomerate is the diversity of investment opportunities and resources among the divisions of the firm. Unlike Scharfstein and Stein (2000), here headquarters is the principal who has the power to transfer resources *ex ante* across divisions but has no power to distribute the surplus that is generated by the divisions *ex post*. The division managers on the other hand have the ability to distribute the *ex post* surplus through negotiations. They affect the amount of surplus they receive through their choice of investment. The two types of investment opportunities are: Efficient investment,

which is the optimal investment and defensive investment, which returns lower value but protects a division from being preyed upon by other divisions. The rules of the game are such that the surplus generated by a particular division has to be shared by the other divisions. If the divisions are similar in resources and opportunities then surpluses generated by them will not differ much. In that case self interested division managers will have no incentive to deviate from choosing efficient levels of investment since the amount shared by the divisions would not be very different.

Inefficiencies arise in this model when the divisions are diverse in resources and opportunities. The division managers know that if the divisions are diverse in resources and opportunities then they will generate uneven surpluses. At least one division manager who generates a higher surplus will not be willing to share his surplus and hence he would undertake defensive investment. The headquarters cannot enforce the sharing rules on the division managers but it can make transfers to the division with poor opportunities in an attempt to make it less diverse so that the manager of the division with better opportunities will choose efficient levels of investment. Thus inefficient cross subsidisation of resources takes place in an attempt to prevent larger inefficiencies which can arise if defensive investment is chosen.

More recently, Choe and Yin (2009) provide a theoretical framework by analysing the investment decisions in a multidivisional firm. In their model they show that if conglomerates are successful in breaking the budget constraint of their divisions then efficiency of a conglomerate increases through its internal capital market. The CEO in their model has the authority to pool and reallocate resources across divisions but cannot do so independently. Their decision to allocate resources to a particular division depends on the information provided by the division manager about the state of that division. The division managers on the other hand derive private benefits from their own divisions. These private benefits are an increasing function of the revenues generated by that division. Higher investments in a division would mean higher revenues and higher private benefits for the division managers. Hence the division managers have no incentive to reveal the true state of their division.

Choe and Yin (2009) propose that the only way to extract truthful information from the division managers is to reward them for truthful revelation in the form of information rents. Thus there exists a trade-off between the benefits of internal capital markets such as pooling resources and reallocating them to best net present value projects and costs of operating internal capital markets in conglomerates, such as information rents which appear in the form of higher wages. They also show that information rents are generally larger in conglomerates



than in single segment firms. Finally they argue that when the costs outweigh the benefits of internal capital markets then conglomerate firms trade at a discount and vice versa. The notable feature of their model is that here diversification discount is not the product of misallocation of resources in internal capital markets but due to information rents paid out to division managers.<sup>8</sup>

### 2.1.3. *Does Diversification Destroy Firm Value?*

Another school of thought argue that conglomerate discount may not destroy the value of a firm. Fluck and Lynch (1999) argue that often standalone firms have marginally profitable positive net present value projects which cannot be financed in the external capital market due to agency problems. They suggest that conglomerate merger is a technology which helps these kinds of projects to survive by funding them in an internal capital market. These positive net present value projects enhance the value of the conglomerates by sending positive signals to shareholders about the ability of the manager to identify a potentially profitable project. However at the same time since these projects are marginally profitable they create less value than a comparable portfolio of single-segment firms. Once the acquired firms overcome their distress period and become profitable so that they can be financed in an external capital market, the acquiring firm chooses to divest the acquired firm if there is coordination costs involved in being a conglomerate.

From an industry perspective, Burch *et al.* (2000) show that diversification does not destroy value of the firm even though it trades at a discount. They argue that firms which belong to non-innovative industries are less adaptable to industry shocks or incorporation of new opportunities as compared to firms which belong to innovative industries. Hence it is best for non-innovative firms to diversify and form conglomerates in order to survive. Once these firms form into conglomerates then they can get funding through internal capital markets and survive industry shocks. The remaining firms which stay as single segment firms face less competition once conglomeration of more sensitive firms take place and hence they become more profitable. Single segment firms comprise of both innovative and non-innovative firms whereas conglomerates comprise of non-innovative firms only. The value of a non-innovative firm is lower than the value of an innovative firm in the industry. Hence conglomerates are valued at a discount compared to more focused firms. They use panel data for fifty prominent industries from 1978 to 1997 and found evidence in support of their argument. Their empirical results show that industry conglomeration levels are higher for

heavily discounted conglomerates whereas, investment opportunities for single segment firms in the same industry are lower.

Diversification can enhance firm value through rise in stock prices on announcement of corporate diversification.<sup>9</sup> On the other hand empirical literature on diversification, discussed in the next section, shows that diversified firms trade at a discount compared to single-segment firms in the same industry. Matsusaka (2001) defines diversification as a 'search/match' process and tries to explain this puzzling phenomenon with the combination of organisational theory and historical evidence. Firms that have organisational capabilities, such as marketing, distribution skills and knowledge of senior and top management, can be transferred to other products and industries. When firms perform poorly and incur lower sales, then instead of liquidating the 'assets/resources' completely, firms try to find other firms which are more suitable for their organisational capabilities. Matsusaka (2001) describes this process of identifying and observing the outcome resulting from such a 'search/match' process as diversification. He argues that diversification discount occurs because diversified firms do not find a good match for their organisational abilities rather than due to diversification itself.

Gomes and Livdan (2004) explains diversification discount with the help of the neo-classical theory of profit maximisation by firms. They put forward two arguments behind a firm's decision to diversify. Firstly diversification allows firms to reap the benefits of economies of scope by lowering the cost of production and by eliminating unnecessary activities in various divisions. Secondly when a firm is mature, its growth slows down. In that case firms diversify to reap the benefits of new productive opportunities. They characterise production as subject to diminishing returns to scale. Hence with higher production the firms experience diminishing returns which motivate the firms to search for other new productive opportunities. Firstly, they found that diversified firms have a lower value of Tobin's  $q$  as compared to single segment firms despite the fact that diversification was an optimal strategy for a firm and inefficiencies were absent from their models. They put forward the argument that the diversified firms trade at a discount, since only those firms which are less productive in their current activity diversify in search of better productive opportunities. Secondly, their theory also predicts that firms undergoing diversification also experience loss in productivity. Their theoretical predictions are supportive of the empirical findings by Lang and Stulz (1994) and Schoar (2002).

## ***2.2. Benefits of Conglomerate Diversification: Diversification Premium***

### *2.2.1. Efficient Internal Capital Market*

External capital markets are often imperfect and costly to operate in and that is why many firms choose to operate in an internal capital market. Williamson (1970, 1975) suggests that firms diversify to prevail over the imperfections that exist in external capital markets by gathering and channelling resources efficiently across their divisions through an internal capital market. The external and internal capital markets also differ with respect to the residual control rights<sup>10</sup> over the respective firm's assets. The external financier (e.g. a bank) does not own the firm to which it is lending capital but the internal financier (i.e. the headquarters) owns the firm in the sense that it has residual control rights over the use of the firm's assets.

Gertner *et al.* (1994) show that this difference in control rights between an external financier and an internal financier has three very important consequences for the firm in question: (a) increased monitoring incentives, (b) decreased entrepreneurial incentives, (c) better asset redeployability. Unlike banks, headquarters have a stronger incentive to monitor the activities of the firm and its managers since better monitoring will ensure a higher return for the latter, owing to its control rights. The downside of the residual control rights of headquarters is that it lowers the incentives of the managers to work harder. Since the managers do not have control rights over the firm's assets they cannot appropriate all the rents pertaining to their managerial ability and are also exposed to opportunistic behaviour from the headquarters. Another weakness of internal financing is influence activities by the managers which might create less value for the company. In an internal capital market there is a higher chance of interaction between managers and headquarters where the former might try to influence the latter with regards to investment decisions. The third consequence leads to better use of corporate assets. If a particular business unit performs poorly then its assets can be transferred to another unit where those assets can be used more efficiently. On the contrary if a single segment firm performs poorly it is often left with no other choice but to liquidate its assets at a lower value.

The 'winner-picking' theory of Stein (1997) also supports the argument that diversified firms can create value. In his model the headquarters has the control rights to resources and it derives private benefit generated by projects that are under its control. The headquarters will receive a larger share of private benefit generated by a more profitable project. Hence the incentive of the headquarters is to undertake more profitable projects which will increase its

private benefits. Owing to its control rights the headquarters can take the resources from one division and divert it to the most deserving division where the returns are higher or it can use one division's assets as collateral to raise finance and then divert it to a more profitable division.

### *2.2.2. Debt Coinsurance*

Debt capacity adds value to the firm and diversification increases firm value by increasing overall debt capacity. Lewellen (1971) argues that diversified firms can have higher debt capacity because diversification reduces their variability in earnings and thus the creditors have greater confidence in the total cash-flow of all the divisions of a multi-divisional firm compared to a focused firm. Their argument is based on 'lender diversification' and 'borrower diversification'. When a lender diversifies he spreads the risk by lending parts of his total portfolio to different organisations and thus ensures that his portfolio cannot all go bad at the same time. But he cannot ensure that a borrower will not default on his loan through this diversification. On the other hand when borrowing firms diversify by merging then the chances of loan repayment increases because if one of the merging partners is performing poorly the other merging partner can support him with his excess cash flow. The chance of defaulting on a loan decreases in the case of diversification by mergers. This in turn boosts the confidence of lenders, which leads to higher debt capacity for the diversified conglomerate.

Shleifer and Vishny (1992) argue that besides higher cash flows conglomerates have advantage in terms of liquidity of assets. Redeployable assets like commercial property can be more easily liquidated than growth assets such as high technology firms and cyclical assets like steel and chemical firms. A conglomerate can sell its assets to several different industries. As long as conglomerates have sufficient assets in the liquid industry, they can avoid selling their assets to industries which are illiquid in terms of assets. A conglomerate also has the option of liquidating its assets in parts so that the value of the liquidated asset remains unaffected. Thus if a focused firm needs to sell its assets during a financial crisis it may find it difficult to do so since its industry peers are also facing the same crisis. On the other hand a diversified firm has the option of selling its assets to those industries which are least affected by the crisis. Thus diversified firms are more insured against market risk and hence have higher debt capacity.

### *2.2.3. Economies of Scope*

Economies of scope often originate from the common use of proprietary knowhow or the common and recurrent use of some specialised and indivisible assets. Such economies of scope are often hard to generate in an external market owing to market imperfections, high costs of transfer and incomplete rules of transaction. Teece (1980) proposes that a diversified firm can reap the benefits of such economies of scope owing to its organisational form. A multi-divisional firm can transfer knowhow across its divisions and thus reap the benefits of economies of scope which in turn increases its value. Similarly assets which can be used to produce many related end products can be used more efficiently if they are owned by a single company. Teece (1982) argues that firms diversify in order to reduce the transaction cost involved in obtaining various assets and services from different markets. Both papers argue that firms that can use similar knowhow and assets can reap various benefits owing to their organisational form and economies of scope can create value for a diversifying firm.

### *2.2.4. Market Power*

Villalonga (2000) argues that firms diversify to acquire more market power. Her study offers three different anti-competitive motives for diversification. First of all, firms diversify so that they can use the profits generated by one division to support aggressive pricing in another division. The second reason is the mutual forbearance hypothesis of multi-market competition<sup>11</sup>. The third reason is that firms often diversify to engage in reciprocal buying with other large firms in order to drive small competitors out of business. This also supports the view of Scott (1982), who argues that when firms have high seller concentration and high multimarket contact, it leads to higher profitability for the diversified firm.

## **3. Empirical evidence and measurement Issues**

This section provides an extensive review of the empirical literature on diversification and supplies international evidence on both diversification discount and premium. In addition, various data and methodologies used in this literature are discussed along with their findings.

### *3.1. Empirical Evidence*

Table 1 summarises the main empirical studies and their findings in the literature.

**Table 1: International evidence on diversification discount/premium**

<b>Author</b>	<b>Period of Study</b>	<b>Country of Study</b>	<b>Database</b>	<b>Findings on Discount/Premium</b>
Lang and Stulz (1994)	1978-1990	US	Business Information file of Compustat	Discount
Berger and Ofek (1995)	1986-91	US	Compustat Industry Segment database	Discount
Servaes (1996)	1961-1976	US	Compustat, Dun & Bradstreet's Million Dollar Directory	Large discount for the 1960s. No discount for the 1970s.
Lins and Servaes (1999)	1994 and 1996	Germany, Japan, UK	Worldscope database	No discount in Germany. Discount in Japan and UK
Khanna and Palepu (2000)	1993	India	Centre for Monitoring the Indian Economy and Bombay Stock Exchange	Premium
Bernardo <i>et al.</i> (2000)	1980-1998	US	Compustat, CRSP	Discount
Anderson <i>et al.</i> (2000)	1985-1994	US	Compustat Industry segment database	Discount
Lins and Servaes (2002)	1995	East Asian countries	Worldscope database	Discount
Graham <i>et al.</i> (2002)	1978-1995	US	Compustat Industry segment files, Securities Data Corporation Mergers and Acquisition database	Discount
Campa and Kedia (2002)	1978-1996	US	Compustat Industry segment database	Discount initially and Premium later
Schoar (2002)	1987	US	Longitudinal Research Database(LRD) at the U.S. Bureau of Census	Premium using profitability measure and Discount using excess value measure
Mansi and Reeb (2002)	1988-1999	US	Disclosure Worldscope database, Lehman Brothers Fixed Income Database	Discount initially but it vanishes later
Fleming <i>et al.</i> (2003)	1988-1998	Australia	AGSM annual report files, Connect 4 databases, Datastream	Discount initially but it vanishes later
Villalonga (2004)	1989-1996	US	Business Information Tracking Series, Compustat	Premium using BITS. Discount using Compustat
Lee <i>et al.</i> (2008)	1984-1996	South Korea	KFTC, KSE, Bank of Korea, Financial Supervisory Service	Premium initially but turns into discount over time
He (2009)	1992-1997, 1998-2004	US	Compustat	Discount using pre-1997 data and premium using post-1997 data

Studies conducted on U.S. firms clearly provide mixed evidence. Lang and Stulz (1994), Berger and Ofek (1995), Bernardo *et al.* (2000), Anderson *et al.* (2000) and Graham *et al.* (2002) find that diversified firms in the U.S. were traded at a discount. They cover the period from 1978 to 1998 and use data from COMPUSTAT. Servaes (1996) studies 1961 to 1976 and finds a discount for the 1960s which vanished in the 1970s. Campa and Kedia (2002) and Mansi and Reeb (2002) also find a discount at the beginning of their period of study which either vanished eventually or turned into a premium. Schoar (2002) finds both discount and premium for two different measures using data from Longitudinal Research Database (LRD) at the U.S. Bureau of Census. Villalonga (2004) finds a premium using Business Information Tracking System but a discount using data from COMPUSTAT for 1989 to 1996. He (2009) uses COMPUSTAT and finds a discount using pre 1997 data and a premium using post 1997 data. These studies are inconclusive as to whether diversified American firms traded at a discount or a premium. The discrepancies in the results could stem either from methodological issues or from using different data sources.

International studies too show that discount exists in some countries whereas others have premium. Lins and Servaes (1999, 2002) find that discount existed in Japan, United Kingdom, Hong Kong, India, Indonesia, Malaysia, Singapore, South Korea, and Thailand whereas no discount is found in Germany. While Khanna and Palepu (2000) find that diversified firms traded at a premium in India, Lins and Servaes (2002) find a discount for Indian firms using a different data source. Fleming *et al.* (2003) find that Australian firms traded at a discount between 1988 and 1998, but the discount vanished when low performing firms are excluded from the sample. Lee *et al.* (2008) conducts a study on South Korean firms between 1984 and 1996 and find that diversified firms traded at a premium initially but this premium is converted to diversification discount over time. The international evidence suggests that the existence of discount or premium could result from institutional differences across countries, methodological issues, and use of different data sources or sample selection bias. The following section provides a detailed discussion of methodologies, various measures and controls used by the above authors.

### ***3.2. Methodology used in Measuring Discount/Premium***

Tobin's  $q$  became the most common measure of firm performance after Lang and Stulz (1994). They use three different measures of diversification to compare the  $q$  ratio of single segment firms with multi-segment firms for various levels of diversification. The first two

measures are Herfindahl indices<sup>12</sup> constructed from sales and assets. The third measure is the number of segments in the firm since more diversified firms have more segments. Lang and Stulz (1994) use cross-sectional regressions for each year from 1978 to 1990. They use a dummy variable to estimate the statistical contribution to  $q$  of diversification. However, they argue that since this method does not take into account the industry effects, a firm belonging to an industry with low- $q$  will automatically have lower  $q$  irrespective of diversification. This short coming is corrected for by using industry-adjusted measures of discount.<sup>13</sup>

Berger and Ofek (1995) use asset and sales multiplier<sup>14</sup> instead of Tobin's  $q$  in order to measure the value effect of diversification. In order to show the possible association between value loss and diversification they estimate pooled regressions using multi-segment dummy and control for firm size, profitability and growth opportunity of the firm.

Khanna and Palepu (2000) use Tobin's  $q$  and rate of return on assets (ROA) as a measure of firm performance. Four different diversification measures are used in their analysis: (a) INDCNT: a count of industries represented in a group, (b) ENTROPY: sum of entropy index of related diversification and an entropy index of unrelated diversification, (c) CONCENTRIC: a weighted average of each firm's share of group sales and (d) HERFIDAHL: sum of squares of each industry's sales as a proportion of total group sales. Both Univariate comparisons and Multivariate regression analysis are performed using Tobin's  $q$  and ROA.

Graham *et al.* (2002) argue that if diversification discount is calculated using the Berger and Ofek (1995) methodology then that might not provide an accurate value due to sample selection bias. The single segment firms which are used as a benchmark for calculating the imputed value of the diversified firm may not be a true representative of a segment in a diversified firm. A diversifying firm may acquire a single segment firm which was already trading at a discount. Hence any single segment firm belonging to the same industry cannot be a true representative of the acquired business which is already trading at a discount. If this is taken into account then diversification discount appears in diversifying firms due to acquiring businesses which are already trading at a discount but not due to the act of diversification itself.

They used two types of samples of firms to find out whether sample selection bias is responsible for diversification discount. The first sample consists of firms which are involved in mergers and acquisitions and for which the market value of the target and the acquirer can be identified prior to acquisition. The second sample comprises of firms that begin as single-segment firms and then increase their number of segments. Nearly two-thirds of the firms in



the second sample increase their segments via acquisitions and one-third of the firms increase their segments because of internal expansion or reporting changes. The excess value measure is calculated using the methodology used in Berger and Ofek (1995).

Campa and Kedia (2002) use instrumental variables and also control for the self-selection of firms that diversify by using Heckman's (1979) two stage procedure. They follow Berger and Ofek (1995) excess value and diversification measures to account for diversification discount. They use both industry specific and firm specific instruments. Besides the instrumental variables they control for firm size and profitability like Berger and Ofek (1995). They estimate different models, which include Berger and Ofek (1995) model, the extended Berger and Ofek (1995) model, regression with firm-fixed effects and year-fixed effects, model with instrumental variable and model with self-selection. They use Probit estimation to calculate the probability of diversifying using the instrumental variables and the control variables. Finally these estimation results are used in the models with instrumental variable and self-selection.

Schoar (2002) adopts a different methodology to address the issue of whether diversification destroys value or not. He uses micro level data for manufacturing firms from the Longitudinal Research Database from the U.S. Bureau of the Census. Instead of using market valuation measures such as excess value of the firm he uses productivity measures of firm performance like total factor productivity (TFP). TFP measures of firm performance are obtained at the plant level by estimating a log-linear Cobb-Douglas production function for each industry and year. Number of segments and Herfindahl index are used as measures of diversification. He also controls for firm size and segment size in his regressions. Schoar (2002) tests several different hypotheses in his paper and uses different dummies to do so.

Lins and Servaes (2002) use the Berger and Ofek (1995) methodology to estimate their model. However they also use excess profitability along with excess value measure of Berger and Ofek (1995). Geographic diversification is controlled for since international diversification might reduce firm value.

Villalonga (2004) points out three criticisms of using segment level data from COMPUSTAT. She argues that diversification discount could be the manufactured product of segment data that is reported in COMPUSTAT. COMPUSTAT provides disaggregated financial information for business segments that represent at least 10% of a firm's sales, assets or profits and also determines diversified and non-diversified firms and the industries in which each firm operates. Unless this information is accurate the excess value measures

will be affected, since the aggregation of imputed values of each segment will not represent the true market value of the firm.

The use of segment data from COMPUSTAT poses certain problems. First of all, according to the Financial Accounting Standards Board firms need to report disaggregated information for segments that meet the 10 percent materiality condition. Hence the maximum number of industries that can be observed for any firm is 10. Again due to managerial discretion often the actual number of segments is not reported. This happens even more when industries are defined at the four-digit SIC code level of precision as in COMPUSTAT. The second problem relates to the way segment is defined in the Statement of Financial Accounting Standards (SFAS). Accordingly a segment can be an aggregation of two or more activities which are either horizontally or vertically related. It is often found that firms report segments which operate in sometimes totally unrelated activities. Hence comparing such segments might not provide a true picture about the relatedness of these segments. Lastly firms often change the segments they report even when there is no real change in their operations. Thus instances of diversification or refocusing in COMPUSTAT are often simply reporting changes.

These three problems can have serious implications for the excess value measures of diversification. This is because the firms can often get misallocated to industries and vice-versa. Firms which belong to more than one industry might often be misrepresented which can affect the industry mean or median  $qs$ . The single segment firms which are reported in COMPUSTAT might often have operations in different businesses. Hence calculations of pure play  $qs$  using segment data from COMPUSTAT might not be accurate. Villalonga (2004) uses a new data source, Business Information Tracking Series (BITS), which can correct the problems in COMPUSTAT. Villalonga (2004) follow the methodology used by Lang and Stulz (1994) and Servaes (1996).

Villalonga (2004) uses varied measures of diversification in order to calculate the diversification discount/premium. She uses the multi-segment or the multi-business dummy as a primary measure of diversification like several other studies before her. However she uses five other measures to check the validity of her results. Besides using a discreet measure such as number of business units in the firm, she uses four continuous measures where higher levels of diversification lead to higher values. These continuous measures are: 1 minus Herfindahl index and three measures of entropy. The three entropy measures include total entropy, unrelated entropy and related entropy. Total entropy measure is very similar to Herfindahl index and is computed at a four-digit SIC level. Unrelated entropy is calculated at

a two-digit SIC level and related entropy is the difference between total entropy and unrelated entropy.

**Table 2: Measurement of variables used to study value effect of diversification**

<b>Author</b>	<b>Excess value measure</b>	<b>Diversification measure</b>
Lang and Stulz (1994)	Tobin's $q$	Dummy variables for number of segments, Herfindahl index
Berger and Ofek (1995)	Asset and sales multiplier, profitability	Multi-segment indicator, number of segments, Related segments
Servaes (1996)	Tobin's $q$ , sales multiplier	Diversification dummy, Dummy variables for number of segments
Lins and Servaes (1999)	Sales multiplier	Diversification dummy
Khanna and Palepu (2000)	Proxy for Tobin's $q$ and ROA to calculate excess value measure	Number of different industries in group, total entropy measure of diversification, concentric measure of diversification, Herfindahl measure of diversification
Bernardo <i>et al.</i> (2000)	asset multiplier	
Anderson <i>et al.</i> (2000)	Revenue multiplier	Diversification dummy
Lins and Servaes (2002)	Sales multiplier, excess profitability, Tobin's $q$	Diversification dummy
Graham <i>et al.</i> (2002)	Asset and sales multiplier	Relatedness between acquiring firms and target firms, whether or not an acquisition leads to increase in number of segment
Campa and Kedia (2002)	Asset and sales multiplier	Diversification dummy
Schoar (2002)	Total factor productivity	Number of segments, one minus Herfindahl index based on segment size
Mansi and Reeb (2002)	Asset and sales multiplier, excess value measure based on the market values of both debt and equity.	Diversification dummy
Fleming <i>et al.</i> (2003)	Earnings before tax and sales multiplier	Diversification dummy
Villalonga (2004)	Tobin's $q$ , Asset and sales multiplier	Diversification dummy, number of business units in the firm, one minus Herfindahl index, three measures of entropy: total, related, unrelated.
Lee <i>et al.</i> (2008)	Earnings before tax and sales multiplier	Group affiliation dummy, entropy index
He (2009)	Sales Multiplier	Diversity measures of capital expenditure, cash flow, leverage and profitability

Table 2 summarises the variables used to study the value effect of diversification. The majority of studies in this area use Tobin's  $q$  and asset or sales multiplier as excess value measure after its introduction by Lang and Stulz (1994) and Berger and Ofek (1995). The exception is Schoar (2002) who employs total factor productivity. Diversification dummy, number of segments and Herfindahl index are the most common measures of diversification. However Berger and Ofek (1995) use related segments and Khanna and Palepu (2000) employ number of different industries in group, total entropy measure of diversification, concentric measures of diversification. Graham *et al.* (2002) employ completely different diversification measures like relatedness between acquiring firms and target firms, whether or not an acquisition leads to increase in number of segments. Villalonga (2004) uses entropy measures along with the conventional measures of diversification. Lee *et al.* (2008) use a diversification dummy to account for relatedness across companies and two entropy indices to capture organisational structure and complexity. He (2009) uses different diversity measures such as capital expenditure, cash flow, leverage and profitability to account to measure their effects on firm value.

### ***3.3. How can Diversification Discount/Premium be explained?***

It is not sufficient to calculate whether diversified firms trade at a discount or premium. It is important to delve deeper into the problem to understand the factors which are driving the results. If it is possible to identify factors which are responsible for diversification discount then that might enable firms to take measures to increase their firm value. On the other hand, if factors generating a diversification premium can be identified then they can be applied to firms which are trading at a discount. This section discusses how different authors have tried to explain their results. Table 3 below summarises the explanations for diversification discount/premium from all relevant studies in the literature.

Lang and Stultz (1994) explain this diversification discount through industry effects, size, access to capital markets, intensity of research and development and theories of internal capital market. Industry effects may be able to explain the negative relation between Tobin's  $q$  and degree of diversification. Diversified firms are concentrated in industries with fewer growth opportunities. They account for industry effects by constructing portfolios of specialised firms that match the industry composition of diversified firms. Industry effects reduce the magnitude of the diversification discount but even after correcting for the industry effects, diversification discount turns out to be positive and significant. Since industry effects

fail to explain this discount another attempt is made to explain it through variables which are known to affect Tobin's  $q$ , such as size, access to capital markets and intensity of research and development.

**Table 3: Explanations for diversification discount/premium**

<b>Author</b>	<b>Explanation for diversification discount/premium</b>
Lang and Stulz (1994)	Discount arises due to industry effects, size, access to capital markets and intensity of research and development and theories of internal capital market.
Berger and Ofek (1995)	Overinvestment and cross-subsidisation leads to diversification discount
Servaes (1996)	Lower insider ownership can lead to higher discount in diversified firms
Lins and Servaes (1999)	Discount has been explained through industrial group membership and ownership structure
Khanna and Palepu (2000)	Premium has been explained by performance effects of group affiliation (a) the degree of access to international investors and joint venture partners, (b) monitoring/entrenchment by inside owners and (c) financing through internal capital markets to explain their results.
Bernardo <i>et al.</i> (2000)	Discount can be explained through lower real options to diversify for multi-segment firms
Anderson <i>et al.</i> (2000)	They tried to explain diversification discount through corporate governance structures
Lins and Servaes (2002)	Discount occurs due to membership in industrial groups and ownership structures
Graham <i>et al.</i> (2002)	Discount arises if characteristics of acquiring firms which are different from typical single segment firms in the industry are not accounted for
Campa and Kedia (2002)	If endogeneity of diversification decision are taken into account then firms trade at a premium
Schoar (2002)	Value loss occurs due to "new toy" effect and rent-dissipation by conglomerates
Mansi and Reeb (2002)	Discount arises due to risk reducing efforts of diversified firms. If market value of debt is considered instead of book value of debt then firms do not trade at a discount.
Fleming <i>et al.</i> (2003)	Discount arises due to low performing firms in the industry
Villalonga (2004)	Premium can be explained through relatedness and strategic accounting
Lee <i>et al.</i> (2008)	Discount arises due to institutional transitions
He (2009)	Discount arises either due to error in data or failure to control for endogeneity

It is assumed in the study of Lang and Stultz (1994) that diversified firms do a better job of capital allocation through an efficient internal capital market. This market enables the various divisions of a diversified firm to invest up to the point at which the marginal return on capital equals the cost of capital and ensures that their cost of capital is lower relative to their stand-alone cost of capital because of the lesser impact of informational asymmetries. Hence, relative to stand-alone specialised firms, the conglomerates invest more and may therefore have lower  $qs$  since their marginal return to capital will be lower. With the above findings, one will expect average  $q$  to exceed one for conglomerates because their market value will capitalise the contribution to shareholder wealth of the reduction in informational asymmetries if there is no error in computing  $q$ . Hence it can be concluded that the benefit from the reduction in informational asymmetries for conglomerates is dominated by inefficiencies such as influence costs and agency costs.

Berger and Ofek (1995) argue that overinvestment and cross-subsidisation contribute towards the value loss of diversification. They further show that this loss is reduced by the tax benefits of diversification. Overinvestment is measured as a sum of the depreciation-adjusted capital expenditures of all segments of the firm operating in industries whose median Tobin's  $q$  is below 0.76 and scaled by total sales. Calculation of this variable is restricted to un-related multi-segment firms. Higher values of the overinvestment variable will imply more unprofitable investment. The negative sign on the coefficient of overinvestment will imply that, higher overinvestment means lower excess values for multi-segment firms with unrelated segments. The regression estimates predict that the difference in overinvestment of 3.6% of sales will indicate an excess value loss of 1.4% to 3.3% for low investment opportunity segments of diversified firms.

Another explanation put forward in favour of value loss from diversification is cross-subsidisation. It is often argued that cross-subsidisation of poorly performing segments in a multi-segment firm often leads to value loss for diversified firms. Berger and Ofek (1995) use negative cash flow as a proxy for poor performance irrespective of the fact that this would be a noisy measure of poorly performing segments if managers had a tendency for falsely reporting the poorly performing segments. They try to examine whether the presence of negative cash flow has more negative impact on diversified firm value as compared to value of a focused firm. This will capture whether poorly performing segments of diversified firms draw resources from other segments in a diversified firm. They find that diversified firms with negative cash flow segments have significantly lower excess values than diversified firms without such poorly performing segments.

In addition, they argue that increased debt capacity and reduced tax payments may lower the value loss from diversification. If firms diversify in businesses which have uneven returns then that increases the debt capacity of the firm. As a result diversified firms can borrow more which leads to higher interest tax shields. Diversified firms can offset the losses of some segments through gains in other segments and hence can create tax advantage for the firm as a whole.

Servaes (1996) finds that during the period 1961 to 1970, when diversification discount was high, single segment firms have higher insider ownership than multi-segment firms. This also suggests that firms which have low insider ownership choose to diversify more as compared to firms with higher insider ownership. However from 1970 onwards level of ownership also increased in multi-segment firms and diversification discount declined. It can be concluded that firms with higher insider ownership choose to diversify when they do not suffer from financial problems. The study conducted by Servaes (1996) can partially explain why firms became more diversified over the period of his study but cannot explain why there is diversification discount at the beginning and what causes it to decline over time.

Lins and Servaes (1999) explain the existence of diversification discount in Germany, Japan and the U.K. through ownership structure and industrial group membership. Ownership concentration is highest in Germany and lowest in the UK. Diversification discount is present in Germany only when insider ownership is below 5%. On the contrary, insider ownership does not affect the diversification discount in Japan and the UK. One distinguishing feature of Japanese firms is their link to industrial groups known as *keiretsu* organisations. Studies are conducted for Japanese firms to see whether industrial group membership affects diversification discount. Their results show that diversified firms trade at a discount of 30% when they have strong links to an industrial group. Their results establish the fact that corporate governance structures indeed play a role in determining diversification discount but there is no fixed pattern present for different countries.

Indian business groups possess features of both conglomerates and LBO associations. There are both costs and benefits associated with group affiliation. However group affiliation can be advantageous in emerging markets like India. Emerging markets are characterised by market failures caused by information and agency problems and intermediary institutions such as financial analysts, mutual funds, investment bankers, venture capitalists, and financial press are well developed. Under these circumstances an enterprise which is a part of a large diversified business group can act as an intermediary between individual entrepreneurs and imperfect markets (Khanna and Palepu, 2000).

Khanna and Palepu (2000) examine three potential sources of performance effects of group affiliation: (a) the degree of access to international investors and joint venture partners, (b) monitoring/entrenchment by inside owners and (c) financing through internal capital markets to explain their results. Business groups are found to have better access to international capital markets which is consistent with the fact that these organisations provide an extrajudicial mechanism for property rights enforcement, either by investing in reputation or due to close relationship with the bureaucracy. Mixed evidence was found from the joint venture data. Providers of technology are more unwilling to deal with groups, though partial evidence shows that larger groups appear to facilitate member's access to international joint venture markets. Insider ownership is found to be positively related to performance of both affiliated and unaffiliated firms. Internal capital market is found to exhibit the same investment sensitivities for both affiliated and unaffiliated firms. So these findings suggest that the results are driven not only by institutional context but also by differences in organisational structure.

Bernardo *et al.* (2000) explain diversification discount through real options. Their conjecture is based on the argument that the market value of single segment firms still includes the real options to diversify and expand in other segments whereas multi-segment diversified firms have already exhausted their options to diversify and expand into more segments. They use variables like R&D/assets and age of single segment firms to proxy for real options. They use three different methods to test their argument. Firstly, if it is true that single-segment firms include the value of real options to diversify and expand into future lines of businesses then there should be a positive relationship between a measure of the firm's real options and the future number of segments in which the firm operates. Secondly, they generate some firms by adding up single segment firms which operate in similar segments as multi-segment firms. They find that multi-segment firms have smaller real options compared to these synthesised firms as diversified firms spend less on R&D, have larger fractions of assets that are tangible, generate larger cash flows and are bigger in size compared to the equivalent synthesised firms. Finally, the relationship between diversification discount and the proxy for real options is examined. They find that diversification discount increases with the proxy for real options. More specifically diversification discount is increasing with R&D expenditures of single-segment firms, decreasing with the age of the single segment firms, and increasing with market volatility.

Anderson *et al.* (2000) use CEO compensation and other CEO characteristics to see whether corporate governance structures destroy firm value. Diversification discount can be



the product of inefficient corporate governance structures which enable managerial entrenchment and help managers to reap private benefits at the cost of shareholders. The differences between focused and diversified firms were identified and whether these differences are compatible with the agency cost explanation of diversification were tested.

Their findings suggest that on average diversified firms have a higher fraction of outsiders on their board of directors, similar ownership by outside block holders, and similar sensitivity of managerial turnover to performance relative to their single-segment counterparts. In addition, their paper examines whether changes in diversification over their sample period can be explained by the ownership and governance characteristics of the firm. Contrary to the managerial agency arguments of diversification they find that firms that increase their level of diversification over the sample period have governance and performance characteristics that are similar to firms that retain their focus. More specifically, firms that reduce their level of diversification are observed to have lower insider ownership but more equity based compensation compared to more focused firms. There is no systematic relationship between diversification and choice of governance structure. Further, the evidence is suggestive of a positive role of equity based compensation in increasing firm value. Higher equity based compensation may motivate the low ownership CEOs to reduce value decreasing activities and undertake activities that leads to higher value for the firm. But their overall results cannot find a significant relation between corporate governance characteristics and diversification discount.

Graham *et al.* (2002) show that diversification discount is not due to diversification itself but rather due to acquisition of low performing businesses. The discount arises due to the characteristics of the acquired units. When a firm increases its number of segments without acquisitions its excess value is not reduced but when there is increase in number of segments through acquisitions huge discounts are created for the diversifying firm. The problem in the literature is that the valuation methodologies treat the divisions of conglomerates as similar to benchmarked stand-alone firms. But the divisions of the conglomerate have several characteristics which are different from these stand-alone firms which are generally not accounted for while calculating excess value. Unless these characteristics are accounted for the effects of corporate diversification on firm value will show erroneous results due to sample selection bias.

Campa and Kedia (2002) argue that firms choose to diversify when the benefits of diversification outweigh the costs of diversification. The benefits from diversification can arise from managerial economies of scale, increased debt capacity, efficient allocation of

resources through internal capital markets, ability of diversified firms to internalise market failures and many other factors. The costs from diversification can arise from inefficient allocation of resources through internal capital market, difficulty in providing optimal incentive contracts, information gap between the central management and division managers, rent-seeking activities by division managers, and so on. These costs and benefits of diversification may create diversification discount. So it is important to take into account such characteristics which can affect both the firm value and the firm's decision to diversify. They control for the endogeneity of the diversification decision of the firm and find a strong negative correlation between a firm's decision to diversify and firm value. After controlling for the endogeneity of diversification decision and certain firm characteristics the discount turned into a premium.

Theoretical literature on diversification discount argues that firms diversify in order to reduce risk. Mansi and Reeb (2002) argue in their empirical paper that diversification discount arises due to the risk-reducing tendencies of the conglomerates. They further argue that diversification reduces shareholder value on the one hand but increases the bondholder value due to the reduction in risk. As a result it may be expected that more diversification discount exists in firms with debt as compared to all equity firms. After using the Berger and Udell (1994) methodology they find a discount of 4.5% in firms with more than average debt levels whereas no discount is found for all equity firms. This result suggests that debt is an important factor in determining firm diversification. They also show that using book values of debt instead of market values of debt for calculating excess value undervalues diversified firms. Finally they try to examine the joint impact of diversification on debt and equity holders. Their results show that diversification reduces shareholder value, increases bondholder value but has no impact on total firm value.

Schoar (2002) identifies two sources of value loss for diversified firms. The first is the "new toy" effect as explained in the previous section. The second is rent dissipation by conglomerates. He finds that diversified firms pay their workers 8% more in the form of fringe benefits or supplementary labour costs as compared to similar stand-alone firms. This wage gap can account for 30% of the discount. He translates the 7% higher productivity as 10% higher annual profit for the diversified firm, whereas a discount of 10% is interpreted as 10% lower annual profit. If a firm earns 10% higher profits annually then for that firm to show a reduction in profit of 10% it must dissipate 20% of its profits. Given this scenario, even if rent dissipation is the only source of inefficiency, then 8% higher wages can explain

at least a part of the discount. Thus rent dissipation in the form of higher wages can explain why diversified firms trade at a discount in spite of their higher average productivity.

Lins and Servaes (2002) explain the discount through (a) membership in industrial groups and (b) ownership concentration. In order to study the relationship between diversification and group membership they have created a group dummy and have it interact with measure of diversification. They found that diversified firms that are a part of an industrial group trade at a discount of about 15%. This supports the argument that when firms which belong to some group diversify they do so in the interest of the managers or controlling shareholders and not the minority shareholders.

Their findings suggest that unless the firm belongs to some industrial groups diversification is not harmful for shareholders. Secondly they study the consequences of ownership concentration on diversification. They suggest that discount would be most severe in a situation where for a certain ownership range the insiders will have enough power to exploit minority shareholders but won't have to bear the cash flow consequences of this opportunistic behaviour. Firms that have a management group ownership concentration of 10%-30% have a high possibility of managerial entrenchment and hence these firms can be expected to have low valuations owing to diversification. Firms in this ownership range are found to trade at a discount of 16%. They examine the effect of pyramid ownership structure. They find that the diversification discount is more severe when control rights owned by insiders exceed their cash flow rights by 25% or more. The empirical study by Lins and Servaes (2002) show that diversified firms have lower value in emerging markets as compared to single-segment firms and the discount created by diversified firms can be explained by the ability of the controlling managers to exploit minority shareholders.

Fleming (2003) uses Berger and Ofek (1995) methodology and finds that Australian firms trade at a discount of 29% compared to a portfolio of single-segment firms. In order to separate performance and diversification he extended the Berger and Ofek (1995) model by using excess profitability measure and interaction effects of profitability and diversification. If profitability interferes with the valuation discount then superior performing multi-segment firms shall be valued at a higher premium or a lower discount than poor-performing multi-segment firms. His results show that multi-segment firms which had a superior performance are not trading at a discount between 1988 and 1998. So he concludes that the diversification discount is due to the poorly performing multi-segment firms rather than multi-segment firms as a whole.

Villalonga (2004) provides two explanations behind diversification premium obtained using BITS database: (a) relatedness and (b) strategic accounting. The first explanation suggests that the two databases COMPUSTAT and BITS provide different but complementary measures of diversification. His findings provide evidence in support of the argument that unrelated diversification leads to a discount whereas related diversification leads to a premium. In BITS all diversification types are pooled together. Thus when such a pooling occurs related diversification is likely to dominate unrelated diversification and hence the overall effect on the firm value is a premium. The second explanation i.e. the strategic accounting explanation is based on how firms define their segments. Diversification discount can arise if firms aggregate their activities into segments such that the segment falsely appears as a low performing division of the firm as compared to single-segment firms in the same industries. Villalonga (2004) compares the segment SIC codes of single-segment firms in the sample and the SIC codes of those same firms in BITS and confirms that the above two explanations justify the discrepancy in results between the two databases.

Lee *et al.* (2008) conduct a longitudinal study of Korean firms and find that diversification premium dissipates along with institutional changes over time. Thus, a robust diversification premium can change into discount if managers fail to make necessary strategic changes in response to institutional and environmental transition. Further this discount is inevitable if policymakers also fail to induce managers to take necessary actions when facing institutional changes. He (2009) empirically analyses pre and post 1997 data and finds discount for the former period and premium for the later. He provides three explanations behind this discrepancy. Firstly, post 1997 data reveal more segment information due to reforms in reporting segment information in US and hence increase the true diversification levels. Secondly, the diversity measures used are more suitable for the post 1997 data and reveal more information about relatedness across segments in a firm. Finally, using of instrumental variables in post 1997 data is more efficient in controlling for endogeneity.

The discussions conducted so far try to justify the existence of diversification discount or premium. These explanations range from firm characteristics, agency theory arguments, CEO characteristics, corporate governance structures to endogeneity problem and sample selection bias. However, there is still further scope of research in this area. Schoar (2002) touches upon the issue of CEO compensation but it is yet to be seen whether CEO compensation plays a role in creating diversification discount or premium. Another interesting issue will be to examine how the long-term and short-term component of CEO remuneration affects the firm performance. The agency theory arguments and theories of

internal capital markets also call for studying the relationship between remuneration at the division manager level and firm performance. The issues are discussed in more details in the next section.

#### **4. Scope for Future Research**

The theoretical and empirical literature on diversification has focused mostly on the conglomerate merger wave of the 1960s and the period of corporate refocusing thereafter. Most empirical studies concentrate on the period from 1978 to 1998. However, many new corporate reforms have taken place all over the world since then, such as the Sarbanes-Oxley Act, which was introduced in America in July 2002. The New York Stock Exchange and SEC have also revised their corporate governance system. In the UK, the Higgs Report and Smith Report have been introduced in January 2003 for better corporate governance practices. CLERP9 Proposals have been introduced in Australia in September 2002 and the Australian Stock Exchange updated its guidelines in March 2003.<sup>15</sup> Hence, it is important to find out whether the conglomerates trade at a discount or a premium in the post-reform period. If discount is still prevailing in diversified firms, then it implies that diversified firms have failed to reap the benefits of diversification following the period after 1998. Consequently, new theories have to be developed and new reforms have to be implemented.

Most authors in the past have not paid much attention in checking the robustness of data using alternative data sources. The empirical evidence in Section 3 suggests that COMPUSTAT is the most widely used database in America. However, when a different source is used, sometimes the discount turned into premium.<sup>16</sup> Thus, it is important to use alternative data sources to verify the robustness of empirical results.

In regard to various measures of firm diversification, the conventional crude ways of measuring diversification are number of segments in a firm, Herfindahl indices and multi-segment dummies. However, there is further scope of development in this area by constructing more concrete discrete and continuous measures of diversification. For example, relatedness among different segments in a firm or number of segments might not be a very meaningful measure of diversification on their own. A firm that have multiple segments might operate in related businesses. In this case, number of segments will not reflect true diversification. Again a firm that have only two segments can operate in unrelated line of business. Here if the number of segments is considered as a measure of diversification, the firm is not sufficiently diversified. However, if relatedness across segments is considered as a

measure of diversification, then the firm has a very high level of diversification. Thus, if measures such as relatedness or number of segments are combined together in a meaningful way, it might provide more concrete discrete measures of diversification. Similarly, continuous measures like Herfindahl indices can be combined with information, such as number of segments in the firm and relatedness of the segments in the firm to arrive at a more meaningful continuous measure of diversification. Dey (2010) in her doctoral thesis uses these combined measures of diversification and shows that diversified firms in Australia trade at a premium between 2004 and 2008.

The existence of diversification discount or premium has been explained in various ways as discussed in Section 3.3. Existing studies have failed to explain diversification discount or premium through compensation incentives to division managers and CEOs. However, if agency theory and internal capital market plays an important role in determining the overall performance of the firm as documented in Section 3.3, it is necessary to focus on the relationship between firm performance and remuneration both at the CEO and division manager level. Wulf (2002) shows that if compensation incentives are based on firm performance then compensation incentives and investment incentives can be used as substitute mechanisms to mitigate influence activities by large influential division manager. However, she fails to touch upon the issue of the effect of using well structured compensation incentives and the substitute mechanism on the value of the firm.

Aggarwal and Samwick (2003) establish the relationship between diversification and agency problems by incorporating risk reduction and private benefits, which are two agency explanations for diversification, into a single model by using data for US in the period 1993 to 1998. They use pay for performance sensitivity as a compensation incentive to CEOs and top five executives in a firm. Although they study the relationship between firm performance, diversification and compensation incentives, their analysis do not focus on explaining diversification discount/premium through compensation incentives to CEOs and division managers.

Li *et al.* (2010) examine the relationship between executive compensation and corporate investment decision using Australian data. Their study finds that the executives and directors focus on their equity based compensation while taking investment decisions for the firm. This result supports the presence of agency problems in Australian corporate organizations. While the implications of agency theory have been empirically examined in the Australian context, those from inefficient internal capital market theory have not been studied for diversified firms in Australia. Existing empirical literature on influence activities

in internal capital markets is confined primarily to the large U.S. and European firms. Thus, there is further scope for studying how influence activities affect the capital budgeting process of corporate organisations in Australia.

In a simple principle-agent framework, CEO of the firm is the principle and division managers of different divisions are the agents. If the division managers receive more long-term benefits, then they would prefer not to undertake wasteful rent-seeking activities and that would mean a higher firm value and hence lower or no discount. In Australia, short-term benefits depend on firm performance as well as achieving individual goals. However, if they receive more short-term benefits such that less weight is placed on firm performance, then their interests are not aligned with those of the shareholders and they prefer to undertake rent-seeking activities if they derive private benefits from doing so. Similarly, if the CEO receives more long-term incentives then he/she will try to monitor the activities of the division managers more closely and will not allow influence activity by division managers. This will lead to higher firm value and even premium.

Choe *et al.* (2009) show that powerful CEOs manage to extract higher compensation, however they find a mixed relation between CEO power and firm performance. CEO power may lead to either higher or lower firm performance. Their study is based on U.S. firm level data and it is never been tested whether similar argument prevails for Australian or other European firms. Thus there is further scope for development in this area by examining the European and Australian firm level data on the value effect of diversification and remuneration for both CEOs and division managers. Dey(2010) incorporates both long term and short term incentives to CEOs and division managers for Australian firms and shows that long-term incentives contributes to diversification premium. Overall, her results suggest that at least part of diversification discount/premium can be explained by compensation incentives; without explicitly incorporating compensation incentives, the reported diversification discount/premium can be either over- or under-estimated.

## **5. Conclusion**

Although the literature surrounding value effect of diversification is analysed by various researchers in the past, no such comprehensive survey has been done in recent times, which depicts the evolution and the recent developments in theory and empirics in the area. This paper chronologically surveys the evolution of theories that are brought forward to explain the various costs and benefits of diversification. This includes theories that argue in

favour and against of firm diversification. Consequently, the empirical literature on this issue is surveyed in greater details. The studies which have been conducted on the U.S., Europe and emerging markets were found to provide mixed evidence in this context. A detailed discussion of the methodology, database, country and period of study is provided and then the results that are obtained by different studies are discussed. The discussions on existing literature are also summarised in tabular forms for ease of comparison. The survey is concluded by examining the empirical literature and discussing how various authors have tried to explain their findings.

Finally, after surveying the theoretical and empirical literature on the value effect of diversification a detailed discussion of further scope for development in this literature is provided. This survey indicates that there is scope for development of a new theory which shows that value effect of diversification depends on remuneration. The empirical literature suggests that there is scope for development of new measures of diversification and scope for examining the effect of CEO and division manager remuneration on value effect of diversification. There is a need for testing the time period after the introduction of CLERP9 reforms to check whether diversifying firms still trade at a discount or premium. If the diversifying firms are found to be trading at a discount then there is a need for the introduction of suitable corporate reforms to prevent the value loss from diversification.

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### **Notes**

<sup>1</sup> Diversification discount or premium can be defined as the difference between the aggregate market value of diversified firms operating in several business segments and the market value of a portfolio of single segment firms operating in similar businesses. When this aggregate value of diversified firms is greater than the market value of corresponding single segment firms the diversified firm is said to have a premium and discount otherwise.

<sup>2</sup> Rent-seeking activities refer to any actions that agents carry out that are designed to increase the likelihood of better ratings from supervisors, but that add less value on surplus than some other activity that they could carry out (Prendergast, 1999). Often members of an organisation spend large amounts of time, effort and ingenuity in order to influence decision makers to partake in decisions that are in their favour. This is also a type of rent-seeking activity referred to as influence activity by Milgrom (1988) and Milgrom and Roberts (1988). For real world examples on influence activities, see Carroll (1993), Bower (1970), Mills and Friesen (1996).



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<sup>3</sup> Internal capital can be cash flow generated by different divisions in a conglomerate, retained earnings of the divisions, excess surplus generated by the divisions, profits generated by the company as a whole or finance raised by holding assets of a division and redirecting it to another division.

<sup>4</sup> See Fudenberg and Tirole (1986) for the definition of signal jamming.

<sup>5</sup> They can engage in improving their outside option or acquiring manager specific skills so that it becomes difficult to fire them.

<sup>6</sup> Empirical evidence on inefficient cross subsidisation were also supported by Scharfstein (1998), Schoar (2002), Glaser and Sautner (2007) and Xuan (2008).

<sup>7</sup> The following example will describe power struggle. Chandler (1966) describes the capital budgeting process at General Motors under Durant's management in the following way: "When one of them [Division Managers] had a project why he would vote for his fellow members; if they would vote for his project, he would vote for theirs. It was a sort of horse trading."

<sup>8</sup> Implications from the model are supported by earlier empirical findings of Schoar (2002).

<sup>9</sup> Schipper and Thompson (1983) found that the announcement returns for the conglomerate acquisition programs were positive. Matsusaka (1993) found that bidder announcement returns for diversifying acquisitions were positive in the 1960s.

<sup>10</sup> Residual control rights are borne by agents who engage in formal contract with the organization for claiming the net cash flow of the company. See Grossman and Hart (1986) for more details.

<sup>11</sup> Edwards (1955) was the promoter of this theory. The mutual forbearance hypothesis of multi-market competition states that conglomerate firms that come in contact with each other in many markets will develop a 'live and let live' philosophy. This is because any action taken by a certain firm in one particular market might trigger retaliation in other markets where it is more vulnerable. As a result the prevalence of conglomerate firms might reduce rivalry among firms even in markets with relatively competitive structure. Firms in the banking industry as suggested by Solomon (1970) could be an example of developing a mutual forbearance hypothesis of multi-market competition.

<sup>12</sup> These indices are a sum of the squared values of sales per segment as a fraction of total firm sales. Thus the Herfindahl index would take the value of one for single segment firms and its value decreases as the number of segments increases.

<sup>13</sup> Industry adjusted measures of discount is the difference between its pure-play  $q$  and its  $q$ . The pure-play  $q$  of a firm is an asset value-weighted average of division  $qs$ . The division  $q$  proxies for the average of the  $qs$  of one-segment firms in the same three-digit SIC code as the division.

<sup>14</sup> They use the natural log of the ratio of a firm's actual value to its imputed value as a measure of excess value. The imputed value of each segment is calculated by multiplying the median ratio of total capital, for single segment firms in the same industry by either segment sales, assets or earnings. Positive excess value means that the diversification leads to higher value for the diversified firm as compared to its stand alone counterparts and negative excess value denotes value loss from diversification.

<sup>15</sup> For more details see Buchanan (2004).

<sup>16</sup> See Schoar (2002), Mansi and Reeb (2002)

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