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## **Does Management Pay Attention? Investor Sentiment Concerning Diversified Firms.**

### **Abstract**

We explore the relationship the time-series aggregate diversification discount (premium) and the boundaries of the firm. Specifically, does a relationship exist between diversification discount and management's choice to operate a diversified (multi-segment) firm or single-segment firm? To do this we compare the predictions of two models with competing predictions. One is a real-options model [by Anjos, 2010] which predicts a positive relationship, the greater the discount the more diversified firms which should be seen in the economy. The second is a theory based upon catering theory. In this model management is attentive to investor sentiment and makes operational choices to align the firm with this observed sentiment. We find support for a catering theory of firm corporate diversification.

## 1. Introduction

Does investor sentiment concerning diversified firms impact the decisions of the management that runs them; specifically, decisions related to their level of diversification? Answering this question may provide additional insight into the inter-temporal change in the proportion of diversified firms as well as the observed aggregate discount for diversified firms (*diversification discount*).

If investor sentiment is part of the decision-making process, we would expect a greater emphasis placed on re-focusing the firm (decreasing the level of diversification) as the aggregate discount on diversified firms increases. However, recent theoretical inferences presented in a real options framework by Anjos (2010) posit that, not only should the aggregate discount on diversified firms persist, but the discount is positively related to the proportion of diversified firms in the economy. In arriving at this novel implication, the model rests on the primary assumption that the cost to re-focus is greater than the cost to diversify and that this asymmetric restructuring cost is an explanation for both the diversification discount and the positive relation of the discount to the number of diversified firms. Since the diversification discount is well documented in extant literature, an empirical analysis of the relation between the diversification discount and the proportion of diversified firms will test the validity of the key assumption of the Anjos (2010) model and, therefore, is the focus of this study. Evidence to the contrary will lend support to the notion that corporate restructuring decisions are influenced by investor sentiment regarding firm diversification.

Empirical diversification literature, first introduced by Lang and Stulz (1994) and Berger and Ofek (1995), most frequently employs the ratio of firm market value to the replacement value of assets (Tobin's Q) (or enterprise value) in order to determine the value-enhancing (destroying) Preliminary results, please do not cite without first contacting authors.

effect of corporate diversification. Results have consistently shown that, on average, diversified firms trade at a discount relative to an industry-matched sample of single-segment firms. However, in light of the overwhelming evidence in support of the diversification discount, the proportion of diversified firms in the economy remains high.

More recent work on the diversification discount has suggested that errors exist within the methodology of this earlier body of literature<sup>1</sup>. Specifically, accounting rules for mergers or acquisitions distorts the implied Q ratio, firms which elect to diversify are underperforming their peers prior to the diversification decision (the choice to diversify is endogenous) or not using the market value of debt causes a bias in results.. Therefore, in addition to an empirical analysis of the relation between the diversification discount and the proportion of diversified firms, we contribute to the literature by proposing a new measure of the diversification discount following the methodology of Baker and Wergler (2004a, 2004b). This measure incorporates a ratio of aggregate book-to-market for diversified versus focused firms within the economy at a given year and we argue that this provides a reliable measure of the aggregate diversification discount that is free from these methodological issues. Furthermore, we incorporate the methodology of Rhodes–Kropf, Robinson and Viswanathan (2005) by decomposing book-to-market into three components in order to better understand the factors driving the observed discount.

Decisions relating to corporate diversification are some of the most fundamental decisions that firms face and thus, garner much attention by researchers. A more recent wave of research has developed dynamic models of corporate diversification that predict both diversifying and re-focusing strategies to be value-maximizing and argue that the diversification discount arises

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<sup>1</sup> See Campa and Kedia (2002); Custódio (2014); Glaser and Müller (2010); Hund, Monk and Tice (2012); Villalonga (2004a, 2004b)

endogenously.<sup>2</sup> A large variation in the diversification discount has also been observed across firms as well as across countries<sup>3</sup> and diversification and re-focusing trends have been documented in both the popular and scholarly finance literature.<sup>4</sup> However, this body of literature has not investigated whether the aggregated discount for diversified firms affects the real decision to diversify or re-focus the firm in the context of management's reaction to aggregate investor sentiment towards diversified firms.

The remainder of the paper is organized in the following way: Section 2 reviews the existing literature, Section 3 covers the main hypotheses, Section 4 explains the data collection process and methodology of the study, Section 5 discusses the results, and Section 6 concludes.

## **2. Literature Review**

### **2.1. Background Information**

The question of whether management considers investor sentiment regarding corporate policy has been proposed in prior corporate finance research. Baker and Wurgler (2004a, 2004b) develop and test a theory in which management incorporates the “desires” of investors (Catering Theory of Dividends) in deciding whether or not to initiate dividend payments. This model has since been extended by Jiang, Kim, Lie, and Yang (2013) and Li and Lie (2006) to include both changes in dividend amount and repurchases. This theoretical and empirical work supports the idea that real corporate actions are affected by investor sentiment in the aggregate. Aghion and Stein (2008) model how strategic choice is affected by investor perception of the firm. In this model, management is aware of investor sentiment regarding their firm. Knowing this,

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<sup>2</sup> See Çolak and Whited (2007); Gomes and Livdan (2004); Maksimovic and Phillips (2002)

<sup>3</sup> Hund, Monk, and Tice (2012); Kuppuswamy, Serafeim, and Villalonga (2012); Lamont and Polk (2001)

<sup>4</sup> Almeida and Wolfenzon (2006); Elia (1978); Hubbard and Palia (1999); Martynova and Renneboog (2008); Sederberg (1969)

management attempts to operate in a manner consistent with investor expectation of the firm in an attempt to maximize value. The model, however, predicts that this process leads to an inefficient and unstable equilibrium between corporate strategies.

## 2.2. Corporate Diversification

Early theory of corporate diversification was developed primarily using static models. Results of this early work on the value-maximizing (destroying) effects of diversification have been mixed. Lewellen (1971) introduced the co-insurance effect in which diversification generates benefits if two (or more) divisions within the firm have imperfectly correlated cash flows. These diversified firms enhance value through a lower default risk relative to more focused rivals. Other value-enhancing effects of diversification may include economies of scope (Teece 1980), reduction in the underinvestment problem (Stulz 1990), and the “deep-pockets” effect of Bolton and Scharfstein (1990).

Conversely, value-destroying effects primarily arise from agency cost theory. Amihud and Lev (1981) argue that managers have the incentive to diversify risks to personal wealth and, as a result, agency costs may arise. Shleifer and Vishny (1989) propose that diversification acts to enhance managerial entrenchment; thus, it is value destroying. Rajan, Servaes, and Zingales (2000) provide evidence that divisional power struggles occurring within a diversified firm may lead to inefficient internal sourcing of capital. Scharfstein and Stein (2000) develop an agency model which is closely tied to the model presented by Rajan et al. (2000). The model of Scharfstein and Stein (2000) is a “two-layered” agency model in that agency issues between top-management and shareholders allow for the agency costs of divisional management to occur (inefficient investment in diversified firms), the so-called “dark side” of internal capital markets.

In contrast to these static models, dynamic models do not assume the organizational form of the firm. As a result, dynamic models are better suited to explore the trade-offs occurring within a diversified firm and, therefore, make cleaner predictions concerning the real strategy decisions of the firm, including the initial diversification choice. While the framework of dynamic models differ, their conclusions are largely the same.<sup>5</sup> The conclusion is that diversification, in itself, is a value-maximizing choice. However, diversified firms may still be valued less than focused firm competitors due to endogenous factors.

### 2.3. Early Diversification Discount Literature

Early research on corporate diversification observed that diversified firms appeared to trade at a discount to a comparable portfolio of stand-alone firms. These methods investigated value using implied market-to-book or the implied market value (Berger and Ofek, 1995; Lang and Stulz, 1994; Servaes, 1996). Subsequent research appeared to support this observed diversification discount. However, empirical researchers have linked the previously mentioned static agency models, inefficient internal capital markets (most likely due to agency issues), and the type of diversification with the observed diversification discount (Denis, Denis, and Sarin, 1997; Denis, Denis, and Yost, 2002; Shin and Stulz, 1998). Lamont and Polk (2001, 2002) investigate the diversification discount using a different approach. Lamont and Polk (2001) consider that the observed discount must be market driven; thus, the discount must hinge on either differences in anticipated future cash flows or differences in future returns between diversified and stand-alone firms. Lamont and Polk (2001) report that a large percentage of the variation observed in the cross-

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<sup>5</sup> For example both Gomes and Livdan (2004) and Maksimovic and Phillips (2002) present production models of firm diversification. Matsusaka (2001) instead uses a search-and-match framework to model the diversification decision. Bernardo and Chowdhry (2002) employ a real-options model with learning. Models presented by Anjos and Fracassi (2013), Hackbarth, Mathews, and Robinson (2012) and Lyandres (2007) incorporate the effect of product market interactions.

section of relative value can be explained by the variation in future expected cash flows. Lamont and Polk (2002) address possible endogeneity issues by using changes in industry structure as a way to capture exogenous changes in the diversification level of the firm; these industry shocks are negatively correlated with firm value and as such, they conclude that diversification is value-destroying.

Billett and Mauer (2003) report that subsidies to small financially constrained segments with “fair” investment options results in increased firm value. However, if capital is transferred out of divisions with relatively good investment opportunities, firm value is diminished. Surprising is that they find evidence that funds transferred to a division with few potential projects that is also constrained significantly increases firm value. Billet and Mauer (2003) conclude that gains in the diversification premium are exhibited when funds flow to segments of the firm that are financially constrained. These findings are supported by Dittmar and Shivdasani (2003) who investigate divesting firms and report a decline in the diversification discount following this re-focusing event.

A second wave of corporate diversification research has questioned the collective findings documenting a diversification discount. The arguments are varied, but can be condensed into three main methodological issues: poor data, measurement error, and endogeneity bias. Villalonga (2004) uses the Business Information Tracking Series (as opposed to the COMPUSTAT segment tapes) and reports no average diversification discount. Whited (2001) argues that measurement error in Tobin’s Q is responsible for reported inefficient diversification across segments. Once corrected, she finds no supporting evidence of inefficient investment. Mansi and Reeb (2002) suggest that the observed discount is an artifact of using book value of debt in the estimation as opposed to the market value of debt. Lastly, Campa and Kedia (2002) and Villalonga (2004b) argue that management’s choice to diversify naturally causes endogeneity bias that significantly

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impacts reported results. Both Campa and Kedia (2002) and Villalonga (2004b) report that the apparent diversification discount disappears after correcting for self-selection bias. Several empirical studies (Chevalier 2004; Graham, Lemmon, and Wolf 2002) provide evidence that, on average, the firms which elect to diversify were either underperforming their peers prior to this decision or they acquired firms which were underperforming prior to their acquisition. This leads to a reduction in the value of the combined entity and provides a possible source of the diversification discount.

Stowe and Xing (2006) examine 230 firms that diversified from single-segment to multi-segment entities over the period 1981-1997 and, when considering growth options as a large portion of market value, find that differences in growth options documented that the diversification discount is connected to a difference in growth options of the firms going forward. Instead, firms that diversify have fewer growth options prior to engaging in diversification activities. When this difference in growth options is controlled for, the discount persists. More recently, Holder and Zhao (2014) consider the effect of growth options and their ability to explain the diversification discount.

#### 2.4. Diversification Discount Later Literature

In light of these criticisms of the diversification discount, more recent literature is served with mixed results. Recently, Chen and Chen (2012) and Hoechle et al. (2012) present evidence that, when controlling for corporate governance, investment inefficiencies arise and the diversification discount is eliminated while Glaser and Müller (2010) approximate the market value of debt and present evidence that the discount disappears. However, Ammann, Hoechle, and Schmid (2012) perform the same modifications and find that the discount persists.

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Interestingly, regarding capital structure, Ammann et al. (2012) report that all equity firms who diversify appear not to be discounted while those with debt exhibit a discount.

The volume of literature covering the diversification discount is vast. For a more complete review of the literature we direct readers to Erdorf, Hartmann-Wendels, Heinrichs, & Matz (2013) who do what who present a thorough literature review of the topic. Finally, additional recent criticisms of the measure of the effect of corporate diversification on firm value include: ignoring industry effects, ignoring macro-economic effects, ignoring firm life-cycles, and ignoring the bias introduced from accounting reporting changes from merger and acquisition activity.<sup>6</sup>

This is not the first study to investigate factors that may influence the diversification or re-focusing decisions of management. Nor is it the first to track the number of diversified firms within the economy. Basu (2010) reports observable trends in corporate diversification as well as common strategic motivation shared among diversified firms electing to re-focus. He reports, for his sample, that approximately 33% of firms that undergo diversification re-focus to single segment firms within four years' time. Related to this Ahn (2009) calculates the annual average diversification discount as well as the number of diversified firms within the economy. He reports that firms with deep discounts typically exit the sample (re-focus) within a four year time period. He interprets his results of the change in excess value as not being caused by changes in market perception of diversified firms or due to endogenous self-selection, rather as support of the notion that poorly run diversified firms (or poorly diversified firms) identify this fact and re-focus. Thus, exiting the sample and changing the average discount observed. Çolak (2010) considers both the choice to diversify and the choice to re-focus concurrently. He argues that failing to do so creates bias when attempting to answer the questions concerning the reasons to either diversify, re-focus,

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<sup>6</sup> Refer to Hund et al. (2012); Impink (2011); Kuppuswamy and Villalonga (2010); Matvos and Seru (2014); Santalo and Becerra (2008); Volkov and Smith (2014)

elect to remain focused, or elect to remain diversified. He reports that, typically, the diversification decision is made with systematic factors (industry or macro-economic conditions) in mind while re-focusing decisions are focused more on un-systematic factors. He also reports no diversification discount or re-focusing premium.

In summary, theory suggests both value-enhancing and value-destroying outcomes from corporate diversification. Recent theories consider the choice to diversify as a dynamic process that should be value-maximizing with the potential threat of a diversification discount due to endogenous forces. Empirical literature has investigated the existence of this diversification discount with many studies providing evidence that the discount is merely an artifact of various forms of bias. As pointed out by both Hund et al. (2012) and Matvos and Seru (2014), diversified firms are a large and important component of the economy and thus, attempting to solve the diversification discount puzzle remains relevant.

### **3. Hypothesis Development:**

The motivation of this paper begins with an analysis of the real options model presented by Anjos (2010) that assumes the costs to re-focus are greater than the costs to diversify. In making this assumption, the model predicts (like many other dynamic models of diversification) that an endogenous diversification discount should arise. The novel prediction of the model, that is the focus of this study, is that the number of diversified firms should be positively related to the diversification discount.

Existing corporate diversification literature does document the existence of a diversification discount, on average. However, the literature has also presented wide variation in the cross-section of relative values for diversified firms based on Tobin's Q. It has also been documented that the average discount changes through time and that it appears to affect the choice

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to re-focus.<sup>7</sup> Furthermore, Ahn (2009), using a hazard model, shows that the relative discount appears to be a good predictor of whether or not a firm stays diversified or re-focuses in the future.

The primary assumption of the model, that the cost to diversify is cheaper than to subsequently refocus, seems to be a reasonable assumption that is verified by the findings of Schlingemann, Stulz, and Walkling (2002) who find that the liquidity of the division is the single most important factor in determining whether or not the assets are divested. Since the liquidity of assets is one of the larger components of the cost to re-focus, this supports the key assumption of the model presented by Anjos (2010).

However, behavioral models suggest that managers do incorporate aggregate investor sentiment into their real strategic corporate decisions (Catering Theory). In addition to the catering theory of dividends (Baker and Wurgler, 2004 a,b) there is also catering theory of nominal stock prices (Baker, Greenwood, and Wurgler, 2009). Catering incentives have also been shown to affect growth dynamics.<sup>8</sup> Catering theory then can be thought of a managers giving investors “what they want”. We extend the idea of catering theory in order to investigate the choice to either diversify or re-focus a firm. If catering theory is applicable to the context of corporate diversification the opposite of the Anjos (2010) model is expected; i.e. the higher (lower) the discount the fewer (greater) the number of diversified firms observed in the economy.

Our primary objective is to contribute to the diversification discount literature by examining the relation between the aggregate diversification discount and the number of diversified firms as well as the predictive power of the discount on the choice to subsequently diversify or re-focus. In doing so, we provide a direct test of both the Anjos (2010) real options model and catering theory as applied to corporate diversification.

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<sup>7</sup> Ahn (2009); Berger and Ofek (1996); Kaplan and Weisbach (1992)

<sup>8</sup> This theory was proposed by Aghion and Stein (2008) and tested by Glushkov and Bardos (2012)

**H1:** *The aggregate diversification discount has no correlation with the number of diversified firms within the economy.*

The hypothesis stated in its null form allows for the investigation of the alternative hypotheses. As predicted by Anjos (2010), the aggregate diversification discount is positively related to the number of diversified firms while catering theory predicts the diversification discount to be negatively related to the number of diversified firms.

**H2:** *The aggregate diversification discount has no predictive power regarding the decision to diversify or re-focus.*

In this case, the null lends support to the Anjos (2010) model because it is not the discount that determines the choice to diversify or re-focus in the model, but rather the market transaction costs. If, however, the economy wide discount (premium) was found to be positively and significantly correlated with the re-focus and diversification decisions, the notion that management listens (caters) to general investor sentiment is supported.

#### **4. Data and Methodology**

All of the data used for this study is collected from the COMPUSTAT or COMPUTSTAT historical segments database. Accounting data for computing the book value of equity is collected from COMPUSTAT. Identification of single-segment (pure-play) firms as well as diversified firms within the economy is accomplished through the use of the historical segment file.

##### **4.1. Sample Selection**

Years considered for this research covers 1983-2013 (31 years). We follow the basic sample selection methodology of Baker and Wurgler (2004 a) by leaving all items in fiscal year ends (this in turn is also the Fama and French, 2001 methodology). As such firms with book equity less than \$250,000 and/or total assets less than \$500,000 are dropped from the sample. We also

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eliminate publically traded utility firms (SIC codes 4900 – 4949) as well as financial firms (SIC codes 6000 – 6999).

The identification of diversified firms will utilize the COMPUSTAT historical segments database. Firms are required to report segment level data for all firm segments (divisions) that constitute at least ten percent of the firm's sales. Managers have a large amount of discretion over how to report the segments of their firm. In order to alleviate issues stemming from differences in reporting we follow the aggregation methodology of Hund et al., (2012). This methodology is also important to follow because of the change in the accounting as mandated by SFAS 131.<sup>9</sup> The reported segments for a given firm (as identified by a unique GVKEY) will be combined at the reported four-digit SIC code. For instance if a firm reports three segments, but two of the segments for the same fiscal reported year share the same the same four digit SIC code we combine these segments. This firm would then have two separate identifiable segments (business units), a diversified firm. However, if the firm reported three segments to the COMPUSTAT database, but all three segments had the same four-digit SIC code these would be aggregated to one segment only, a focused (pure-play) firm.

For determining those firms which undergo a diversifying event we consider the number of reported business units after aggregation in the current year ( $t_0$ ) and the year prior ( $t_{-1}$ ). If in the current year the firm reports two or more segments and in the prior year the firm reports only one segment then this firm would be classified as having undergone a diversifying event. Fan and Lang (2000) propose a way of verifying that an apparent change in segment number corresponds to an actual divesting or diversifying event, they require a minimum change in total firm assets.

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<sup>9</sup> For a more complete review of these changes one may refer to Berger and Hann (2003), Herrmann and Thomas (2000), Street, Nichols, and Gray (2000), Anjos and Francassi (2013b).

We apply the same requirements. In similar fashion to Baker and Wurgler (2004 a,b) we list an aggregate of the firm-level data and make the following definitions:

$$Diversified_t = New\ Diversified_t + Old\ Diversified_t + List\ Diversified_t \quad (1)$$

$$Old\ Diversified_t = Diversified_{t-1} - Refocused_t - Delist\ Diversified_t \quad (2)$$

We also define the next two variables as a means of following the inter-temporal change in the number of diversified firms.

$$Diversify_t = \frac{New\ Diversified_t}{Nondiversified_{t-1} - Delist\ Focused_t} \quad (3)$$

$$Continue\ Diversified_t = \frac{Old\ Diversified_t}{Diversified_{t-1} - Delist\ Diversified_t} \quad (4)$$

$$Continue\ Focused_t = \frac{Focused_t}{Focusued_{t-1} - Delist\ Focused_t} \quad (5)$$

$$Refocus_t = \frac{Refocused_t}{Diversified_{t-1} - Delist\ Diversified_t} \quad (6)$$

Therefore, *Diversify* is the percentage of surviving focused (pure-play) firms whose management elects to diversify within a given year, on a year over year basis. Where of course *New Diversified* would capture the number of firms whose management elected to diversify in a given year. *Continue* captures the percentage of firms which elect to remain diversified (from those firms already diversified) in a given year, over year basis. The same logic applies to the *Focused* and *Refocus* definitions. Using these variables we are able to track the true change in diversified and focused firms in the economy. These definitions are logical if investors are making crude classification of stocks, in this case a focused or diversified firm. This is analogous to prior literature where investors consider a firm to be only a dividend payer or non-payer (Baker and Preliminary results, please do not cite without first contacting authors.

Wurgler, 2004 a,b) or as a growth or value company (Aghion and Stein, 2008 as well as Glushkov and Bardos, 2012). We also recognize in similar fashion to Çolak (2010) (among others) that firm management face at most three possible decisions: diversify, refocus or continue in current form (either focused or diversified).

#### 4.2. Empirical Measure of Discount

In order to avoid confusion with prior literature (i.e. the difference between actual and implied enterprise values or Tobin's Q) we call our measure of discount (premium) for diversified firms within the economy diversified Q differential which we denote as DQD. This measure is analogous to the premium measure for dividend payment used by Baker and Wurger. This is the difference of the logs of the average market-to-book (M/B) ratios of diversified firms to focused firms within the public economy. We follow the definition of M/B of Fama and French (2001), end of calendar year market equity divided by book equity. For market value of the firm we subtract book value of equity from book value of assets and add market value of equity.<sup>10</sup> The market value is then divided by the book value of assets to arrive at the used measure of M/B. Both the equal and value weighted averages of the M/B ratio for diversified and focused firms in each year. Our measure DQD is the difference in the log value of these two averages. It is acknowledged that firm characteristics between focused firms and diversified firms are different, as such we attempt to control for many of these differences at the firm level in the cross-section in a similar fashion to that used in the traditional diversification discount literature.

Cohen and Lou (2012) document that investors having frictions in information processing can lead to return predictability in diversified firms. Furthermore, they show how the more

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<sup>10</sup> Following the previous literature book equity is defined as: stockholders' equity plus preferred stock par value OR book assets minus liabilities minus preferred stock liquidating value plus balance sheet deferred taxes and investment tax credit (when available) minus post retirement assets (when available).



diversified (complicated) the firm the greater is the predictability in returns. In addition Cohen and Lou document that diversified firms do not appear to deviate from their long-run fundamentals to the same degree as do pure-play firms. This observation alone may cause a discount for diversified firms during expansions (booms). If an observed discount (premium) is affected by these types of deviation from long-run trends it is possible that management does not react to the level of the discount (premium) for diversified firms.

In order to better investigate this possibility we follow the work of Rhodes–Kropf, Robinson, and Viswanathan (2005). In this paper they illustrate how the M/B ratio may be decomposed into market value/long-run (fundamental) value and long-run value/book value. They further decompose the first ratio into two parts, giving a total of three components for the original M/B ratio. The resulting three parts of the ratio correspond to roughly firm level misvaluation, a component that tracks industry level misvaluation, and fundamental value to assets in place (alternatively long-run growth options). Rhodes-Kropf et al. estimate the long-run fundamental value through cross-sectional regressions at a firm and industry level. The model used to estimate the fundamental (market) value of the firm is given from the following cross-sectional equation:

$$m_{it} = \alpha_{0jt} + \alpha_{1jt} * b_{it} + \alpha_{2jt} * ni_{it} + \alpha_{3jt} * I * ni + \alpha_{4jt} * lev + \varepsilon_{it} \quad (7)$$

where the variables are defined in the following fashion.

$m$  = ln (market value of the firm end of calendar)

$b$  = ln (book value of the firm end of fiscal year)

$ni$  = ln (absolute value of reported net income)

$I$  = an indicator variable with the value one if the reported annual net income is negative

$lev$  = the leverage ratio of the firm

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This equation is estimated annually for each of the twelve Fama and French industry classifications.

This function estimates the fundamental value of the firm. This firm-level estimate is calculated two ways. The first is with the annual estimates  $\hat{\alpha}_{0-4}$  from the previously discussed equation by industry. The fundamental value is also estimated using the long run average estimates for a given industry over the entirety of the sample period:  $[\sum \hat{\alpha}]/T$  for all estimated  $\alpha$ . Thus, we have both a fundamental value using current values as well as an estimate using the long-run industry average. We use these estimates in the final step to decompose M/B. Represented as an equation this yields:

$$m_{it} - b_{it} = (m_{it} - v_{i;\hat{\alpha}}) + (v_{i;\hat{\alpha}} - v_{i;\bar{\alpha}}) + (v_{i;\bar{\alpha}} - b_{it}) \quad (8)$$

where  $v_{i;\hat{\alpha}}$  is the estimated fundamental value of firm  $i$  using current accounting data and current year estimates and  $v_{i;\bar{\alpha}}$  is the estimated fundamental value of firm  $i$  using current accounting data and long-run average estimates. The first term is the firm-specific estimated mispricing, the second term is estimated mispricing of the firm due to the industry, and the final term is the estimated long-run value of the firm to current book value. These estimates of the three components of M/B are then treated in the same fashion as originally performed for M/B in building the original measure of discount. This allows for better understanding of what may be driving the observed total discount for diversified firms.

Lastly, for cross-sectional tests conducted in the paper we employ a multi-nomial logit model. We are motivated by the findings of Campa and Kedia (2002); Çolak (2010); Villalonga (2004b) which show that diversification and/or refocusing may be endogenous to other firm and industry characteristics. Furthermore, Çolak shows that failing to estimate both the diversifying and re-focusing choice in the same model may lead to a misestimated model in addition to biased

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estimates. It is for this reason we too employ a multinomial logit model in these cross-sectional tests. For control variables we use many of the same controls found in these previous documents. In order to construct the multinomial model we first consider diversification choice. A firm's management team has three possibilities at any period of time. They could elect to diversify to a multi-segment firm, refocus to a single-segment firm or no change in current firm structure. Of these choices no change is the default option and occurs most often, as a result this is our base case model.

## 5. Results

### 5.1. Sample Characteristics

<[Table 1 about here](#)>

Table one displays the annual time series results of the data. A firm is reported as focused if it is a firm which operates only one aggregated segment in one industry. The trends observed for firms within the economy follow the well-known trends reported in previous literature. Namely, an increase of public firms through the early portion of the sample hitting a peak prior to the bursting of the dot.com bubble and then a marked decline following the implementation of the Sarbanes-Oxley legislation. This is seen for both focused as well as diversified firms. We can also see that for the majority of the years there are more firms which refocus than diversify across the time period studied. The number of firms in this study's sample are in line with previously reported literature (Ahn, 2009; Hund, Monk, & Tice, 2010) for the common time periods considered.

<[Figure 1 about here](#)>

Referring to figure 1 it is possible to observe several interesting facts concerning the data as well as the nature of the discount measure. First, we can observe in both panel A and panel B

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that until the late 1990s there appears to be a premium for diversified firms when the measure (DQD) is calculated on a value-weighted basis. That is the log of the value-weighted M/B of diversified firms less the log of the value-weighted M/B of focused firms is typically positive. However, if DQD is calculated on an equally weighted basis than the usual discount as reported in previous literature using the Berger and Ofek methodology is observed. This observation is interesting in that it implies that there may be a small firm effect taking place and that this effect may be what causes the apparent discount. This supports the results presented by Hund et al. (2012), who also claim that the discount is a result from comparing large mature firms to small and young firms. However, in the years following SFAS 131 the premium is not as large and in some cases a discount can still be observed. Also when considering the DQD measure we can see that the discount (premium) changes through time and appears to be counter-cyclical.<sup>11</sup> This finding warrants further study, and may add additional power to applying our proposed methodologies to the study of the possible diversification discount.

Secondly, with regards to the number of public diversified firms within the economy (panel A) there appears to be positive correlation between the measure of discount (premium) and the number of diversified firms. This would support the idea of Catering Theory for diversification and would go against the Anjos (2010) model. However, when one considers the percentage of diversified firms within the economy rather than the raw number this correlation is not so readily observed. Instead the opposite appears to be more accurate.

Lastly, when considering panel B of the figure we also see a strong decrease in percentage terms for almost every year leading up to the implementation of SFAS 131. Immediately after the trend is broken. While we are primarily concerned with firms choice to either diversify or refocus

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<sup>11</sup> This observation also is just in support of previously reported findings. For example refer to Kuppaswamy and Villalonga, 2010 or Volkov and Smith, 2014

for the aggregate tests it can be seen that it is important to control for the accounting rules change. We also acknowledge that SFAS 131 was merely an accounting change and that this should not have impacted the actual choice to diversify, focus or remain unchanged it is possible that the data itself even after attempting to mitigate this impact is different prior to and after the change in reporting requirements. This finding is similar to that reported by Anjos and Fracassi (2013).

[<Table 2 about here>](#)

Table 2 displays the inter-temporal change in the measure of diversification. The table shows the measure three ways: value-weighted, equally-weighted, and as in Baker and Wurgler (2004) the average of these two averages. Displayed in table 2 is also the analogous results for the decomposition of B/M following Rhodes-Kropf et al (2005). It is important to note that for both the value-weighted as well as the average of the value and equally weighted portfolios the time-series average is statistically indistinguishable from zero. This supports the assertion of prior literature that there is in fact not a diversification discount and that the observed discount may be methodologically driven. The equally-weighted portfolio does have a small statistically significant discount, but is much smaller than found in other literature.

Considering decomposition of M/B we also note interesting findings. In this case for each of the three measurement approaches we see that the firm component is negative and statistically significant. This implies the portion of M/B driven by short term deviations from fundamental value is typically larger for focused firms than it is for diversified firms. This supports the findings of Cohen and Lou (2012). For each of the three measurement approaches the component representing industry deviation is statistically indistinguishable between focused and diversified firms. Lastly, we see that the measure picking up on long-run value to book value is statistically positive for the value-weighted and average of the averages. This finding implies that on average

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the diversification discount may be driven by short-run mispricing of focused firms. While Cohen and Lou state the diversified firms should tend to stay closer to their fundamental value, they do not consider this impact on the possible observed diversification discount. To our knowledge we are the first to document this fact. This would also be in line with many theoretical papers which show that diversification is value-maximizing, yet an endogenous discount may still arise.

## 5.2. Time-Series Results

To test if the Anjos (2010) model holds we first consider then number of diversified firms within the economy in a given year compared to the level of discount in the year previous. If the predictions of the model hold we should expect to see a negative relationship. That is the greater the discount, the more diversified firms observed within the economy. However, if manager are catering their real business strategies to investors and the discount (premium) within the economy is economically meaningful, we would expect to see a positive relationship. If however, the discount is either not economically meaningful, or as observed in the decomposition of the discount grounded in market mispricing it is possible that no relationship may be observed.

For the results section we report of measure of discount, DQD, in two ways. The first DQD is the measure following the Baker and Wurgler methodology (the average of the difference between both equally and value weighted portfolios of diversified and focused firms), while dqd follows the Baker and Wurgler methodology, but is only the difference between equally weighted portfolios of diversified and focused firms. We use these same designations for the remainder of the paper. This is motivated by the results reported in Table 2. While our measure dqd is different than the traditional Berger and Ofek (1995) measure dqd is closer in spirit to the Berger and Ofek measure, and is reported for comparison purposes.

[<Table 3 about here>](#)

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In Table 3 we consider both a simple univariate and multivariate model to test the relationship. The univariate results show a positive albeit statistically insignificant relationship between the discount for diversified firms and the number of diversified firms within the economy. However, when a basic multivariate model controlling for changes in the broad economy (percentage change in real GDP) is considered we find that the relationship is still positive and that for *dqd* this relationship is also statistically significant. The results therefore go against the predictions of the Anjos model weakly supports a catering theory of diversification.

While the number of diversified firms within the economy is important, to further investigate these two competing theories it is beneficial to consider the change of the different types of firms within the economy from year to year in response to the a discount for diversified firms within the economy. Table 4 reports these results. The table consists of four panels each with four models investigated. In each of these four models it is the dependent variable which is changing. This dependent variable is the percentage of firms which either did not change its firm structure (remained diversified or focused), firms which elected to diversify for the first time and finally elected to refocus to only single-segment firms. When considering the findings for firms electing to diversify we find a positive correlation between a lagged measure of discount (premium) and the choice to diversify for the first time. This finding refutes the Anjos (2010) model, and supports a catering theory of corporate diversification. While the relationship documented is consistently positive the relationship is not statistically significant.

[<Table 4 about here>](#)

Next, considering the results of continue focused, we see a consistently negative relationship. Here, for this variable *dqd* is also statistically significant. These results are again consistent with a catering theory, but inconsistent with Anjos' model. This is because as the

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diversified firms are less discounted, or even valued at a premium a smaller fraction of firms remain as focused only firms. When considering the percentages of continuing diversified firms within the economy we have an interesting result. Here, in this case none of the measures of diversification discount is significant. Perhaps, more interestingly we see that the signs for the two different measures of discount are opposite each other. The sign on DQD is consistent with the expectation of catering theory, while the sign of  $dqd$  is more consistent with the model of Anjos. Lastly, when considering refocusing we again observe results consistent with catering theory (three out of four models), as discount decreases so does refocusing.

In summary, we find for the time-series tests conducted evidence that is more consistent with a catering theory of corporate diversification than with a model driven by pure costs alone. More particularly the signs of the coefficients are consistent with that of a catering theory. While some of results are lacking statistical significance we use the results found in the time-series as motivation for further investigation. It is possible however given the lack of statistical significance neither theory is appropriate. In order to increase the statistical power of the test we next investigate the relationship with our measured discount for diversified firms in the aggregate economy at the firm level. We do so in order to see if the degree of observed discount predicts if a firm will elect to diversify for the first time, or refocus back to a single-segment firm.

### 5.3. Cross-Sectional Investigation

While the Anjos model cannot be used to predict firm level motivation, a catering theory of corporate diversification is able to do so. We would expect that the relative aggregate level of discount (premium) for diversified firms would be a significant motivating force behind the diversification or refocus decision. If however, the observed discount was driving primarily by mispricing of single-segment firms, as appears to be the case (see section 5.1) it is possible that

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the discount (premium) is not a real economic measure, and as such management should not be expected to react. Using the decomposition of the discount measure will provide deeper insight into these possibilities.

[<Insert Table 5 about here>](#)

Table 5 displays our results. In this table the main variable of interest is the measure of discount. Here, we have a column for the regression output for the choice to diversify or refocus the firm and how it is impacted by the one year lag measure of discount (dqd and DQD). The expected sign to diversify should be positive while it would be expected to be negative to refocus in order to be consistent with catering theory. The control variables used in the regressions are generally in line with prior literature, as a result we focus on the variables of interest in both tables 5 and 6. When considering the first two columns of the table it can be observed that both of the coefficients are positive and insignificant. The results are therefore weak. When considering the last two columns of table five we see both of the coefficients of the anticipated sign to be in concordance with catering theory. Again, we interpret the results as weak support for catering theory. We attribute the apparent weakness of the results due to the larger possible mispricing of focused firms as opposed to diversified firms as documented in prior literature. This taken together with the results presented in section 5.1 makes investigation of the decomposition of the discount measure of critical importance.

[<Insert Table 6 about here>](#)

The results displayed in table six show strong support for catering theory, which until investigation of the decomposition of diversification measure is entangled in the components of Q. However, when looking at the three components which make up Q, a firm level mispricing measure denoted by Firm, an industry average mispricing component denoted Sector and a Long-

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Run value (or growth options) measure denoted Long-run can the true relationship be disentangled. If we consider the  $dqd$  measure we first observe a negative coefficient on firm. This is opposite of the expected sign. While this measure is insignificant it is important to observe because it illustrates how the different components may be masking the true relationship. When observing the long-run component of  $Q$  it can be observed a strong positive and significant relationship with the incentive to diversify. Staying with the option to diversify the firm we can see that the  $DQD$  measure again yields a strong positive and significant relationship with the long-run component of  $Q$ . We also see a positive, but much smaller reaction to the firm level component of  $Q$ . Since the  $DQD$  measure has greater weight given to larger and more established firms, it is possible that the mispricing component which would more severely impact small firms is mitigated in this version of the measure. The component attributable to industry effects positive in both cases. These findings lend strong support to the idea that firm management if not cater at the least respond very strongly to the aggregate discount (premium) within the economy for diversified firms.

When next considering the incentive to refocus a diversified firm based on the aggregate discount for diversified firms the results are not as strong. For the  $dqd$  measure none of the components are statistically significant and they are of the opposite anticipated signs. However, for the  $DQD$  measure while the results are only weakly significant they are of the anticipated sign in accordance with a catering theory of corporate diversification. When considering then this evidence with both the choice to diversify and refocus we interpret the findings to strongly support the catering theory after disentangling the competing components of  $Q$ .

We fully acknowledge that Anjos' model is not mutually exclusive with that of a catering theory of dividends, its predictions are not supported in these findings. One caveat is that the support for catering is much stronger for diversifying events as opposed to the choice to fully

refocus. This could be interpreted as in the same spirit as in the mode of Anjos. For he predicts that firms will diversify, but then be unwilling (or unable) to refocus due to increased costs. Our findings and interpretation is also in line with that of Çolak who presents evidence that firms diversify for a many reasons some of these may be located “outside” the firm, like the aggregate investor discount (premium) attributed to diversified firms. However, it seems that firm’s refocus for more specific firm related reasons.

## **6. Conclusion:**

In this paper we consider two possible explanations for the relationship between the average discount (premium) for diversified firms within the economy as compared to single-segment firms. The first is the model proposed by Anjos (2010). The second is a catering theory of corporate diversification which is in spirit to the catering theory of dividends by Baker and Wurgler (2004 a,b) or the model proposed by Aghion and Stein (2008). These two models predict the opposite relationship. Our time series findings support the idea of a catering theory of corporate diversification.

In further cross-sectional investigation at the firm level we find evidence that again supports the catering theory. These results are strengthened after decomposing Q into its three parts; a firm-level mispricing component, an industry-level component capturing possible industry wide mispricing and the final component which captures long-run value. The measure tracking aggregate discount or premium of these three components have both statistical and economic significance, particularly with the choice to diversify.

Finally, we use a new approach to measure the aggregate discount within the economy for diversified firms. We first construct a time-series average of Q differential between a portfolio of

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all diversified firms and a portfolio of all single-segment firms within the economy. The measure is free from many of the criticisms of traditional measure of diversification discount. This measure points to the possibility of a small firm effect or bias within the measurement of the discount for diversified firms. This finding supports some assertions in the extant literature. However, we leave exploration of the possibility to future studies. The benefit of the discount measure proposed is that it is easier to disentangle the main components of Q and therefore, Q differential. We find evidence that a substantial portion of the observed discount attributed to diversified firms is actually a result of firm-level mispricing for single-segment firms. To our knowledge this is the first time this finding has been documented and also could be explored in future research.

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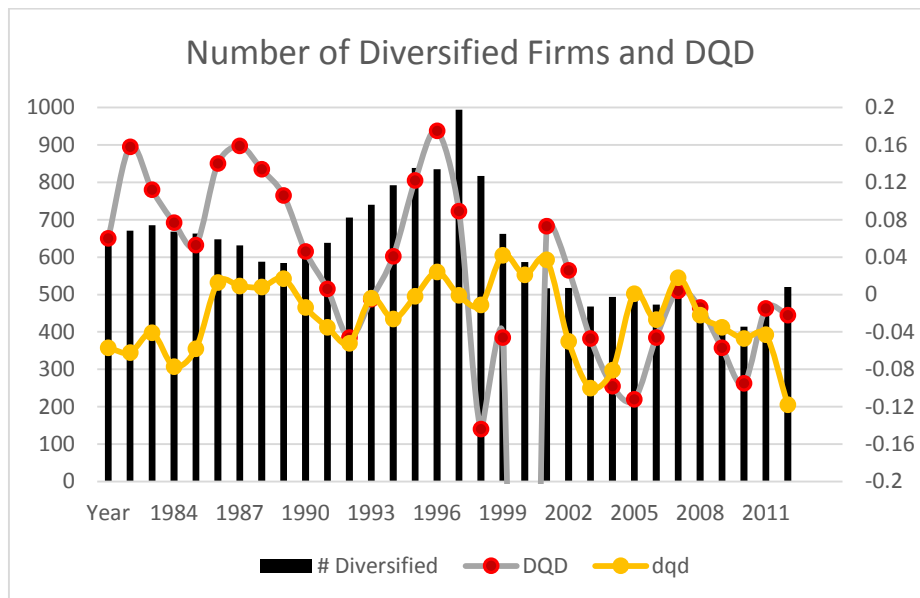
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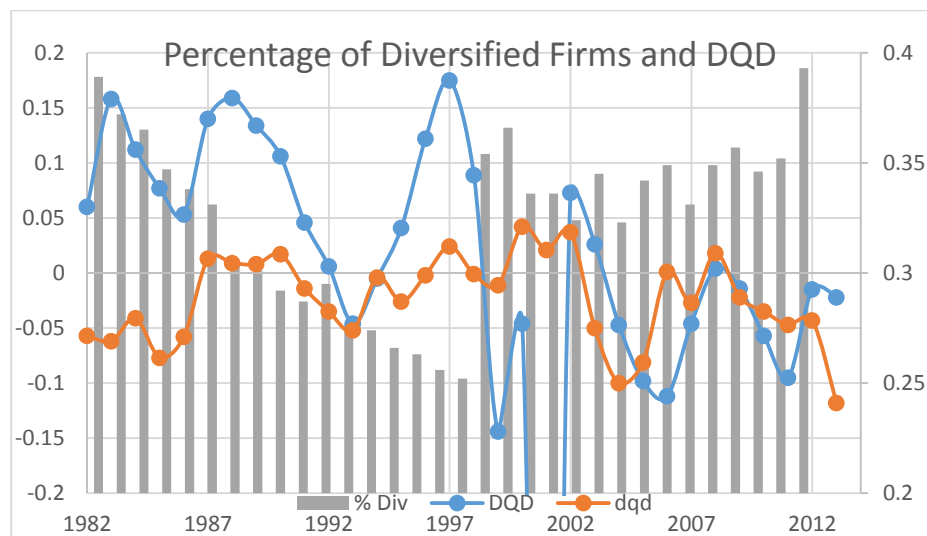
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**Figure 1: Changes in diversification and refocusing trends**

**Panel A**



**Panel B**



Panel A displays the number of diversified firms within the economy overlaid with the measure of discount. DQD is the value-weighted measure of discount, the log of value-weighted average of M/B of diversified firms less the log of the value-weighted average of M/B of single segment firms. While dqd is the equally weighted measure of discount. Panel B displays the same measures DQD and dqd, however in the second panel we observe the percentage of diversified firms within the economy.

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**Table 1: Sample Firms**

<b>Year</b>	<b>Focused</b>	<b>Diversified</b>	<b>Diversifying</b>	<b>Re-Focus</b>
1982	1022	651	32	33
1983	1135	671	23	27
1984	1192	685	27	43
1985	1254	668	23	32
1986	1342	663	24	42
1987	1470	648	27	42
1988	1462	631	18	38
1989	1423	588	15	41
1990	1449	584	17	36
1991	1517	634	25	31
1992	1662	638	18	34
1993	1868	706	15	28
1994	2044	740	25	35
1995	2221	792	36	42
1996	2435	838	39	39
1997	2481	835	57	54
1998	1815	994	95	35
1999	1417	817	61	55
2000	1310	662	59	47
2001	1161	587	25	38
2002	1078	517	20	35
2003	983	518	21	31
2004	974	468	20	26
2005	947	494	27	32
2006	920	494	24	13
2007	958	473	23	20
2008	918	493	29	20
2009	832	462	19	20
2010	814	431	27	13
2011	762	414	23	23
2012	742	480	18	18
2013	650	520	22	28
<b>Total FirmYears</b>	<b>42258</b>	<b>19796</b>	<b>934</b>	<b>1051</b>

The table shows the number of focused (single-segment) firms and diversified firms (multiple-segment) firms which are publically listed within the economy for the years considered. The table also shows the number of firms which either elected to undertake diversification for the first time or the number of firms which elected to refocus to only a single segment.

Preliminary results, please do not cite without first contacting authors.

**Table 2: DQD Measure and Decomposition**

Year	BDQD	BFIRM	BSECTOR	BLONGRUN	Year	dqd	firm	sector	longrun	Year	DQD	FIRM	SECTOR	LONGRUN
1982	0.00	-0.07	0.00	0.08	1982	-0.06	-0.07	0.00	0.01	1982	0.06	-0.08	0.00	0.15
1983	0.05	-0.09	0.05	0.09	1983	-0.06	-0.07	0.01	0.00	1983	0.16	-0.11	0.09	0.18
1984	0.04	-0.04	-0.03	0.11	1984	-0.04	-0.05	-0.01	0.02	1984	0.11	-0.03	-0.05	0.19
1985	0.00	-0.07	-0.01	0.08	1985	-0.08	-0.07	-0.01	0.01	1985	0.08	-0.06	-0.01	0.15
1986	0.00	-0.07	-0.02	0.08	1986	-0.06	-0.05	-0.02	0.01	1986	0.05	-0.08	-0.02	0.15
1987	0.08	-0.02	-0.02	0.12	1987	0.01	-0.01	0.00	0.03	1987	0.14	-0.04	-0.03	0.21
1988	0.08	0.00	-0.05	0.13	1988	0.01	0.00	-0.01	0.03	1988	0.16	0.01	-0.09	0.24
1989	0.07	-0.02	0.00	0.09	1989	0.01	-0.01	-0.01	0.03	1989	0.13	-0.04	0.01	0.16
1990	0.06	-0.04	0.01	0.10	1990	0.02	0.01	0.00	0.01	1990	0.11	-0.09	0.02	0.18
1991	0.02	-0.02	-0.01	0.05	1991	-0.01	-0.01	-0.02	0.01	1991	0.05	-0.04	0.00	0.09
1992	-0.01	-0.03	0.00	0.01	1992	-0.04	-0.02	-0.01	-0.01	1992	0.01	-0.04	0.02	0.03
1993	-0.05	-0.02	0.00	-0.03	1993	-0.05	-0.02	0.00	-0.03	1993	-0.05	-0.02	0.00	-0.03
1994	0.00	-0.04	-0.01	0.04	1994	0.00	-0.01	0.00	0.00	1994	0.00	-0.07	-0.02	0.08
1995	0.01	-0.05	-0.01	0.06	1995	-0.03	-0.03	-0.01	0.02	1995	0.04	-0.06	-0.01	0.11
1996	0.06	-0.02	0.01	0.06	1996	0.00	-0.01	0.00	0.01	1996	0.12	-0.03	0.03	0.12
1997	0.10	0.03	0.00	0.07	1997	0.02	0.01	0.01	0.01	1997	0.18	0.06	-0.01	0.13
1998	0.04	-0.06	0.06	0.05	1998	0.00	-0.01	0.02	-0.01	1998	0.09	-0.11	0.09	0.11
1999	-0.08	-0.09	0.01	0.00	1999	-0.01	-0.02	0.01	0.00	1999	-0.14	-0.16	0.02	0.00
2000	0.00	-0.07	0.06	0.01	2000	0.04	0.00	0.04	0.00	2000	-0.05	-0.15	0.08	0.03
2001	-1.05	-1.04	0.00	0.00	2001	0.02	-0.01	0.05	-0.02	2001	-2.11	-2.08	-0.06	0.03
2002	0.05	0.04	0.05	-0.03	2002	0.04	0.02	0.05	-0.04	2002	0.07	0.06	0.04	-0.03
2003	-0.01	0.00	0.00	-0.02	2003	-0.05	-0.03	0.00	-0.03	2003	0.03	0.03	0.00	-0.01
2004	-0.07	-0.06	-0.03	0.02	2004	-0.10	-0.04	-0.03	-0.03	2004	-0.05	-0.08	-0.03	0.06
2005	-0.09	-0.02	-0.06	0.00	2005	-0.08	-0.02	-0.05	-0.01	2005	-0.10	-0.03	-0.08	0.01
2006	-0.06	-0.01	-0.06	0.01	2006	0.00	0.02	-0.03	0.01	2006	-0.11	-0.04	-0.09	0.01
2007	-0.04	-0.11	0.01	0.06	2007	-0.03	-0.01	0.00	-0.01	2007	-0.05	-0.22	0.03	0.14
2008	0.01	-0.09	0.02	0.08	2008	0.02	-0.02	0.06	-0.02	2008	0.00	-0.15	-0.01	0.17
2009	-0.02	-0.07	0.05	0.01	2009	-0.02	-0.04	0.05	-0.04	2009	-0.01	-0.11	0.04	0.05
2010	-0.05	-0.06	-0.04	0.05	2010	-0.03	0.00	-0.02	-0.01	2010	-0.06	-0.12	-0.06	0.12
2011	-0.07	-0.07	-0.03	0.03	2011	-0.05	-0.03	-0.01	-0.01	2011	-0.09	-0.11	-0.06	0.07
2012	-0.03	-0.03	-0.05	0.05	2012	-0.04	-0.01	-0.03	-0.01	2012	-0.02	-0.05	-0.07	0.11
2013	-0.07	-0.10	-0.08	0.10	2013	-0.12	-0.06	-0.06	0.00	2013	-0.02	-0.14	-0.10	0.21
<b>Avg</b>	<b>-0.032</b>	<b>-0.075***</b>	<b>-0.005</b>	<b>0.049***</b>	<b>Avg</b>	<b>-0.024***</b>	<b>-0.021***</b>	<b>0.000</b>	<b>-0.003</b>	<b>Avg</b>	<b>-0.04</b>	<b>-0.130***</b>	<b>-0.01</b>	<b>0.100***</b>
<b>Std Error</b>	<b>0.034</b>	<b>0.006</b>	<b>0.034</b>	<b>0.008</b>	<b>Std Error</b>	<b>0.007</b>	<b>0.004</b>	<b>0.005</b>	<b>0.003</b>	<b>Std Error</b>	<b>0.069</b>	<b>0.064</b>	<b>0.009</b>	<b>0.013</b>
<b>t-stat</b>	<b>-0.945</b>	<b>-2.367</b>	<b>-0.890</b>	<b>6.266</b>	<b>t-stat</b>	<b>-3.476</b>	<b>-4.744</b>	<b>-0.085</b>	<b>-0.890</b>	<b>t-stat</b>	<b>-0.581</b>	<b>-2.033</b>	<b>-1.184</b>	<b>7.528</b>

The table above shows the time series measure of discount per year as well as the average and statistical power. The three separate calculations reflect the three averages. dqd is the measure of discount using equally-weighted portfolios for both diversified and focused firms. DQD is the measure of discount using value-weighted portfolios. BDQD follows the methods of Baker and Wurgler 2004 and is the average of the value-weighted and equally weighted measures. Also shown is the three-part decomposition of the M/B measure following the same approach. \*\*\*, \*\*, \* denote significance at the 1%, 5% and 10% levels of statistical significance respectively.

**Table 3: Time-Series Investigation Number of Diversified Firms**

	(1) Number of Diversified Per year	(2) Number of Diversified Per year	(3) Number of Diversified Per year	(4) Number of Diversified Per year
Lag DQD	183.4 (0.1653)		71.64 (0.5305)	
Lag dqd		560.0 (0.4366)		1392.1** (0.0194)
Post '98			-88.30* (0.0660)	-94.38** (0.0278)
GDP			29.79** (0.0227)	39.63*** (0.0023)
Constant	622.9*** (0.0000)	629.2*** (0.0000)	578.5*** (0.0000)	580.4*** (0.0000)
<i>N</i>	31	31	31	31
<i>R</i> <sup>2</sup>	0.065	0.021	0.391	0.497

In the table above the number of public diversified firms within the economy per year from 1983 – 2013 is the dependent variable. DQD is the measure of aggregate discount in the economy using the average of both an equally-weighted portfolio average as well a value weighted portfolio average, while dqd is the equally-weighted measure only. Post '98 is an indicator variable taking the value of one for the years 1998 and after, which correspond to the years after the implementation of SFAS 131. GDP is the percentage change in real GDP. \*\*\*, \*\*, \* denote significance at the 1%, 5% and 10% levels of statistical significance respectively with robust standard errors.

**Table 4: Time-Series Investigation Percentage Change****Panel A**

	(1) DIVERSIFY	(2) Cnt. Foc.	(3) Cnt. Div.	(4) REFOCUS
Lag dqd	0.0246 (0.1482)	-1.076** (0.0211)	-0.547 (0.2163)	-0.00234 (0.2065)
Constant	0.00195** (0.0082)	0.967*** (0.0000)	0.985*** (0.0000)	0.00163*** (0.0000)
<i>N</i>	31	31	31	31
<i>R</i> <sup>2</sup>	0.071	0.170	0.052	0.054

**Panel B**

	(1) DIVERSIFY	(2) Cnt. Foc.	(3) Cnt. Div.	(4) REFOCUS
Lag DQD	0.00117 (0.7174)	-0.0387 (0.6697)	0.111 (0.1742)	-0.000261 (0.4518)
Constant	0.00147* (0.0251)	0.991*** (0.0000)	1.000*** (0.0000)	0.00168*** (0.0000)
<i>N</i>	31	31	31	31
<i>R</i> <sup>2</sup>	0.005	0.006	0.063	0.020

**Panel C**

	(1) DIVERSIFY	(2) Cnt. Foc.	(3) Cnt. Div.	(4) REFOCUS
Lag dqd	0.0266 (0.1446)	-1.081*** (0.0006)	-0.614 (0.1914)	-0.00465*** (0.0014)
post98	0.00160 (0.2229)	-0.149*** (0.0000)	-0.0476 (0.1630)	0.000259** (0.0106)
GDP	0.000269 (0.4786)	-0.0145** (0.0210)	-0.00843 (0.3905)	-0.000110*** (0.0004)
Constant	0.000389 (0.8023)	1.086*** (0.0000)	1.032*** (0.0000)	0.00177*** (0.0000)
<i>N</i>	31	31	31	31
<i>R</i> <sup>2</sup>	0.124	0.725	0.124	0.596

**Panel D**

	(1) DIVERSIFY	(2) Cnt. Foc.	(3) Cnt. Div.	(4) REFOCUS
Lag DQD	0.00242 (0.4762)	-0.0669 (0.2935)	0.0907 (0.2945)	0.0000620 (0.8316)
Post '98	0.00183 (0.1930)	-0.155*** (0.0000)	-0.0380 (0.2830)	0.000269** (0.0306)
GDP	0.0000731 (0.8432)	-0.00674 (0.3330)	-0.00493 (0.5998)	-0.0000794** (0.0183)
Constant	0.000350 (0.8271)	1.088*** (0.0000)	1.033*** (0.0000)	0.00178*** (0.0000)
<i>N</i>	31	31	31	31
<i>R</i> <sup>2</sup>	0.069	0.590	0.103	0.406

Preliminary results, please do not cite without first contacting authors.

In the table above the percentage of diversified and focused firms as well as the percentage of firms changing their firm type within the economy per year from 1983 – 2013 is the dependent variable. The four models in each of the four panels of the table correspond to the definitions contained on p. 14. DIVERSIFY is the percentage of firms which diversify for the first time compared to the total number of focused firms in the prior year. Cnt. Foc. is the percentage of firms which remain focus, and Cnt. Div. is the percentage of firms remaining diversified. REFOCUS is the percentage of diversified firms which elect to become single-segment firms compared to the number of diversified firms in the prior year. DQD is the measure of aggregate discount in the economy using the average of both an equally-weighted portfolio average as well a value weighted portfolio average, while dqd is the equally-weighted measure only. Post '98 is an indicator variable taking the value of one for the years 1998 and after, which correspond to the years after the implementation of SFAS 131. GDP is the percentage change in real GDP. \*\*\*, \*\*, \* denote significance at the 1%, 5% and 10% levels of statistical significance respectively with robust standard errors.

**Table 5: Firm Level Multi-Nomial Logit**

	Ln (P1/P3) Diversify dqd	Ln (P2/P3) Refocus dqd	Ln (P1/P3) Diversify DQD	Ln (P2/P3) Refocus DQD
Lag Discount	0.665 (0.5776)	1.098 (0.3524)	1.115*** (0.0033)	-0.216 (0.2570)
Size	0.0918*** (0.0002)	0.0111 (0.6214)	0.0893*** (0.0002)	0.00979 (0.6606)
Profitability	0.0906** (0.0167)	-0.158 (0.0690)	0.0886** (0.0205)	-0.157 (0.0686)
Investment	0.0710** (0.0296)	-0.773** (0.0118)	0.0690** (0.0381)	-0.773** (0.0117)
R&D	-0.230 (0.3133)	-2.823*** (0.0003)	-0.219 (0.3338)	-2.823*** (0.0003)
Leverage	0.0329 (0.7999)	0.637*** (0.0000)	0.0319 (0.8053)	0.640*** (0.0000)
Sales Growth	-0.000345 (0.1518)	-0.0454*** (0.0037)	-0.000322 (0.1939)	-0.0457*** (0.0035)
Ind. Ag. Profit	-0.0192** (0.0276)	-0.0148 (0.1662)	-0.0219** (0.0148)	-0.0151 (0.1576)
Ind. Ag. Inv.	0.0101 (0.1928)	-0.0257 (0.1630)	0.0101 (0.1697)	-0.0249 (0.1659)
Ind Ag. R&D	-0.0473*** (0.0057)	-0.00506 (0.7526)	-0.0511*** (0.0030)	-0.00611 (0.7034)
SP	-0.346** (0.0392)	0.533*** (0.0000)	-0.342** (0.0408)	0.538*** (0.0000)
GDP	0.102*** (0.0070)	0.0818** (0.0037)	0.0816** (0.0169)	0.0715*** (0.0058)
Ind. HHI	0.857 (0.0654)	0.138 (0.7309)	0.842* (0.0698)	0.140 (0.7263)
Merger Count	0.000934*** (0.0010)	-0.000412 (0.1215)	0.000853*** (0.0018)	-0.000328 (0.1875)
Merger Value	-0.000724 (0.1143)	0.000621 (0.2150)	-0.000667 (0.1563)	0.000621 (0.2113)
Post '98	0.634*** (0.0000)	0.165 (0.1357)	0.711*** (0.0000)	0.116 (0.3067)
Constant	-6.055*** (0.0000)	-4.311*** (0.0000)	-5.965*** (0.0000)	-4.340*** (0.0000)

<i>Total Obs.</i>	48,240		
<i>Diversifying</i>	934	<b>P1 =</b>	1.94%
<i>Focusing</i>	1051	<b>P2 =</b>	2.18%
<i>No Change</i>	46,225	<b>P3 =</b>	95.89%

Preliminary results, please do not cite without first contacting authors.





**Table 6: Firm Level Multi-Nomial Logit Decomposed Discount Measure**

	<b>Ln (P1/P3) Diversify dqd</b>	<b>Ln (P2/P3) Refocus dqd</b>	<b>Ln (P1/P3) Diversify DQD</b>	<b>Ln (P2/P3) Refocus DQD</b>
Lag Firm	-3.854 (0.1286)	-0.881 (0.6612)	0.580* (0.0536)	-0.350* (0.0656)
Lag Sector	1.334 (0.4728)	2.558 (0.1399)	2.044* (0.1027)	1.371 (0.2459)
Lag Long-Run	12.667*** (0.0008)	2.649 (0.3569)	6.658*** (0.0000)	-1.703* (0.0804)
Size	0.0962*** (0.0001)	0.0129 (0.5666)	0.101*** (0.0000)	0.0159 (0.4596)
Profitability	0.0906** (0.0170)	-0.156* (0.0666)	0.0902** (0.1220)	-0.156* (0.0109)
Investment	0.0672** (0.0454)	-0.778** (0.0118)	0.0686** (0.2736)	-0.779** (0.0014)
R&D	-0.219 (0.3364)	-2.831*** (0.0003)	-0.215 (0.4709)	-2.835*** (0.0001)
Leverage	0.0160 (0.9028)	0.635*** (0.0000)	-0.0127 (0.9349)	0.629*** (0.0000)
Sales Growth	-0.000333 (0.1679)	-0.0449*** (0.0038)	-0.000309 (0.8570)	-0.0450*** (0.0308)
Ind. Ag. Profit	-0.0201** (0.0227)	-0.0149 (0.1696)	-0.0190** (0.1263)	-0.0138 (0.2598)
Ind. Ag. Inv.	0.00896 (0.2718)	-0.0256 (0.1636)	0.0116 (0.2112)	-0.0255 (0.2427)
Ind Ag. R&D	-0.0485*** (0.0046)	-0.00441 (0.7856)	-0.0458*** (0.0354)	-0.00266 (0.8836)
SP	-0.372** (0.0264)	0.527*** (0.0000)	-0.389** (0.0204)	0.516*** (0.0000)
GDP	0.0889** (0.0207)	0.0685** (0.0226)	0.0927*** (0.0020)	0.0702*** (0.0038)
Ind. HHI	0.829* (0.0743)	0.142 (0.7223)	0.812* (0.0625)	0.140 (0.7191)
Merger Count	0.00120*** (0.0001)	-0.000251 (0.3875)	0.000755*** (0.0046)	-0.000292 (0.2330)
Merger Value	-0.00164*** (0.0034)	0.000375 (0.4988)	-0.000638 (0.2115)	0.000536 (0.2835)
Post '98	1.053*** (0.0000)	0.196 (0.1807)	0.947*** (0.0000)	0.177 (0.1421)
Constant	-6.287*** (0.0000)	-4.396*** (0.0000)	-6.407*** (0.0000)	-4.503*** (0.0000)
<hr/>				
<i>Total Obs.</i>	48,240			
<i>Diversifying</i>	934	<b>P1 =</b>	1.94%	
<i>Focusing</i>	1051	<b>P2 =</b>	2.18%	
<i>No Change</i>	46,225	<b>P3 =</b>	95.89%	

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