Corporate diversification

Can the observed diversification discount shed light on management's choice to diversify or re-focus?

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Abstract

Purpose – The purpose of this study is to compare two theories that relate the proportion of diversified firms in the economy and the implied discount for diversified firms: the first is a real-options model predicting a positive relationship between the discount and management's choice to operate a diversified firm; the second is based on catering theory, in which a negative relationship is predicted, as management is attentive to investor preference concerning diversified firms.

Design/methodology/approach – This study proposes a new aggregate measure of the diversification discount. The authors' measure allows for decomposition of the discount into firm-level mispricing, industry-level mispricing and long-run fundamental value components.

Findings – Results support a catering theory of diversification. The discount appears to be the result of firm-level mispricing. Thus, providing an explanation for why, in light of the observed discount, a large number of diversified firms persist.

Originality/value – To the authors' knowledge, this is the first study to provide evidence that firm-level mispricing may drive the observed diversification discount.

Keywords Corporate diversification, Catering theory, Corporate refocusing, Diversification discount, Investor preferences, Market mispricing

Paper type Research paper

Introduction

Does changing investor perception concerning diversified firms influence the decisions of the management that operates those firms; specifically, the diversification decision itself? The answer may provide additional insight into the inter-temporal change in the proportion of diversified firms in the economy, as well as the observed aggregate discount for diversified firms (i.e. *diversification discount*).

If investor perception influences the decision-making process, then we expect a greater emphasis placed on re-focusing (i.e. decreasing level of diversification) as the aggregate discount on diversified firms increases. However, theoretical inferences presented in a real options framework by Anjos (2010) posit that, not only should the aggregate discount on diversified firms persist, but also positively relate to the proportion of diversified firms in the economy. As such, the model rests on the primary assumption that the costs to re-focus are greater than the costs to diversify. The asymmetric restructuring cost is an explanation

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for both the diversification discount, and the positive relation between the discount and the proportion of diversified firms. An empirical analysis of the relation between the diversification discount and the proportion of diversified firms tests the validity of the key assumption of the Anjos (2010) model and, therefore, is the focus of this study. Evidence to the contrary supports the notion that corporate restructuring decisions are influenced by investor perception (i.e. *catering theory*).

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 based on the methodology of Baker and Wurgler (2004a, b) in their study on the catering theory of dividends. Our measure incorporates an aggregate market-to-book ratio for diversified versus focused firms within the economy. Furthermore, we incorporate the methodology of Rhodes–Kropf *et al.* (2005) by decomposing market-to-book into three component parts, representing firm-level mispricing, industry-level mispricing and long-run fundamental value. Thus, contributing to the diversification literature by shedding light on why so many firms remain diversified in spite of the observed discount. Our results support a catering theory of corporate diversification and are robust to firm-level and industry-level mispricing and the inclusion of the traditional firm-level measure of the diversification discount.

Related literature

The question of whether management considers investor attitudes regarding corporate policy has been proposed in corporate finance research. Baker and Wurgler (2004a,b) develop and test a theory in which management incorporates the "desires" of investors in deciding whether to initiate dividend payments (i.e. *Catering Theory of Dividends*). This work supports the idea that real corporate actions are affected by investor attitudes in the aggregate. Aghion and Stein (2008) model strategic choice and investor perception. In their model, management is aware of investor perception regarding the firm and attempts to operate in a manner consistent with an investor expectation.

Diversification discount

The methods used to investigate diversification typically calculate implied market-to-book or implied firm value (Berger and Ofek, 1995; Lang and Stulz 1994) and show a discount, on average, for diversified firms. A second wave of research questioned these findings. The arguments vary from poor data, to measurement error, to endogeneity bias[1]. Additional recent criticism 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[2]. The literature on the observed diversification discount is vast; as such, we refer the reader to Erdorf *et al.* (2013) for a more in-depth review.

Basu (2010) reports trends in corporate diversification, as well as a common strategic motivation among diversified firms that re-focus, showing that approximately 33 per cent of diversifying firms re-focus to single segment firms within four years. Related, Ahn (2009) calculates the annual average diversification discount, as well as the number of diversified firms within the economy and reports that firms with deep discounts typically re-focus within four years.

Hypothesis development

We begin with an analysis of the model presented by Anjos (2010). The key assumption of this model is that re-focusing costs are greater than the costs to diversify. In making this assumption,

the model predicts that an endogenous diversification discount should arise and that the proportion of diversified firms in the economy should be positively related to the discount.

Anjos' model illustrates that the synergies obtained from operating a multi-segment firm may become negative, thus lowering firm value and producing a "diversification discount", as the negative synergies represent the cost of diversification. Theoretically, these firms need only to re-focus to eliminate the negative synergies. However, the firm will only have an incentive to re-focus if the present value real cost of re-focusing is less than the negative synergy value, thus re-focusing increases firm value. Therefore, if the cost to re-focus is greater than the cost to diversify, then many diversified firms in the economy trading at a discount will remain diversified and the economy-wide aggregate discount will persist. As the cost to re-focus and the discount increase, fewer diversified firms trading at a discount will have an incentive to re-focus, leading to a positive relationship between the economy-wide discount and the number of diversified firms.

While the key assumption of the model is defensible, it cannot be confirmed, as the re-focusing costs of firms who have not re-focused are difficult to measure. The motivation to empirically examine the Anjos (2010) model is strengthened by the counterintuitive implication that managers will choose to remain diversified in a market that discounts diversified firms.

Consistent throughout the theoretical real options literature is the assumption that managerial decisions are always consistent and grounded in complete rationality (after all, if re-focusing cost is greater than the cost of diversification, then the decision to remain diversified is certainly rational). This assumption is necessary to a theoretical framework, as management behavior is not easily modelled. Unfortunately, this assumption ignores theories regarding managerial behavior, such as catering theory, which may act to undermine the validity of the model in a real market setting.

Because of this difficulty in modelling behavior, to our knowledge, a formal theoretical model of catering theory related to corporate diversification does not exist. However, behavioral models suggest that managers do incorporate aggregate investor perception into their strategic corporate decisions. In addition to the catering theory of dividends by Baker and Wurgler (2004a,b), Baker *et al.* (2009) investigate catering theory[3] as it applies to nominal stock prices, and catering incentives have been shown to affect growth dynamics[4]. If management wishes to "listen" to the market regarding diversified firms, they may align their corporate structure to take advantage of market "desires".

Thus, as a competing hypothesis to the implications of the Anjos (2010) model, we extend the idea of catering theory to investigate the choice to either diversify or re-focus the firm based on investor opinion regarding diversified firms:

H1. The aggregate diversification discount has no impact on the proportion of diversified firms within the economy.

The first hypothesis, stated in its null form, allows for the investigation of each alternative hypothesis. As predicted by Anjos (2010), the aggregate diversification discount is positively related to the proportion of diversified firms, while catering theory predicts the discount to be negatively, as managers have an incentive to re-focus and unwind the discount:

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

For the second hypothesis, the null lends support to the Anjos (2010) model because it is not the discount that determines the choice to re-focus, but rather the re-focusing cost. If, however, the economy-wide discount was found to be negatively (positively) related to the

diversification (re-focus) decision, then the notion that management caters to general investor attitude concerning diversified firms is supported.

Cohen and Lou (2012) assert that rational agents face cognitive limitations (i.e. information processing limitations). They show how an information shock that is industry specific impacts diversified and single-segment firms differently. Specifically, the more complex the firm, the more predictable the return. They also show diversified firms are less likely to experience "sentiment shocks" to the same degree as single-segment firms. Thus, diversified firms remain closer to their long-run fundamental value. It is our contention that if the market is subject to systematic mispricing, systematic mispricing may drive the observed diversification discount that results from comparing market prices of diversified firms with smaller, easier to process, single-segment firms.

If market mispricing is driving the discount, then we will observe a stronger contribution of the firm-level and/or industry-level mispricing component. Further, if market mispricing is driving the diversification discount, then corporate diversification strategies may indeed be value-maximizing, providing a possible explanation for the large number of diversified firms in a market that appears to discount them. This proposition is in-line with the theory presented by Rhodes–Kropf and Viswanathan (2004), who argue that relative over/under-valuation from long-run fundamental value is what drives merger waves:

H3. The observed aggregate diversification discount is driven by systematic market mispricing.

Data and methodology

We collect data from COMPUSTAT North America and COMPUTSTAT Historical Segments databases. We consider the impact of industrial diversification only to limit the number of possible strategic choices modeled within the study.

Sample selection

We analyze the 32-year period 1982-2013 and follow the basic sample selection methodology of Baker and Wurgler (2004a) and Fama and French (2001). Firms from the COMPUSTAT Historical Segments database are required to report segment-level data for all firm segments (i.e. divisions) that constitute at least 10 per cent of sales. However, managers have a large amount of discretion over segment reporting. To alleviate issues stemming from differences in reporting, we follow the aggregation methodology of Hund *et al.* (2014). In this process, we combine all segments that report the same four-digit SIC code into one segment. By doing so, we help to alleviate the so-called *pseudo-conglomerates* – firms which report many segments, despite operating an essentially pure-play firm. This methodology also accounts for changes in the accounting procedures for segment reporting as mandated by SFAS 131 (1997)[5].

We consider the number of reported business units, after aggregation, in the current year (t_0) versus the year prior ($t-1$). If, in the current year, the firm reports two or more segments while reporting one in the prior year, then this is classified as a diversifying event. Likewise, if a firm reports one segment in the current year while reporting two or more in the previous year, then it is classified as a re-focusing event. We follow Fan and Lang (2000) and require a 5 per cent change in assets to "verify" the diversification/re-focus event occurred. Following Baker and Wurgler (2004a, b), we aggregate firm-level data and make the following definitions:

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

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

$$Focused_t = Refocused_t + Old\,Focused_t + List\,Focused_t \quad (3)$$

$$Old\,Focused_t = Focused_{t-1} - New\,Diversified_t - Delist\,Focused_t \quad (4)$$

where:

Diversified (Focused) = # diversified (focused) firms;
Old Diversified (Old Focused) = # diversified (focused) of same form prior year;
New Diversified (ReFocused) = # firms that changed structure from prior year;
List Diversified (List Focused) = # of diversified (focused) firms absent from sample in the previous year; and
Delist Diversified (Delist Focused) = # of last year's diversified (focused) firms who are absent from the sample in the current year.

To track the inter-temporal change in the number of diversified and focused firms, we define the following variables by recognizing that management faces, at most, three possible choices: diversify, refocus or continue in their current form (Çolak, 2010):

$$DivEvent_t = \frac{New\,Diversified_t}{Focused_{t-1} - Delist\,Focused_t} \quad (5)$$

$$ContDiv_t = \frac{Old\,Diversified_t}{Diversified_{t-1} - Delist\,Diversified_t} \quad (6)$$

$$RefEvent_t = \frac{Refocused_t}{Diversified_{t-1} - Delist\,Diversified_t} \quad (7)$$

$$ContFoc_t = \frac{Old\,Focused_t}{Focused_{t-1} - Delist\,Focused_t} \quad (8)$$

$$Diversified_t = \frac{New\,Diversified_t + Old\,Diversified_t}{Total\,Firms_t} \quad (9)$$

where:

DivEvent = per cent focused firms that diversified;
ContDiv = per cent of diversified firms that remain diversified;
RefEvent = per cent of diversified firms that refocus;
ContFoc = per cent of focused firms that remained focused; and
Diversified = per cent of diversified firms to total number of firms in economy.

Empirical measure of discount

Because the primary implication of the Anjos (2010) model relates to the aggregate proportion of diversified firms in the economy, we develop an aggregate discount measure. Further, our aggregate discount measure must be decomposable to investigate our third hypothesis regarding the impact of market mispricing on the observed discount. For these reasons, we base our discount measure on the relative market-to-book (M/B) ratios of diversified versus focused firms. To avoid confusion with prior literature, we refer to our measure as the 'Diversified Q Differential' (DQD). This measure is analogous to the premium measure for dividend payment used by Baker and Wurgler (2004a,b) and calculated as the difference in the logs of the average M/B ratios of diversified firms-to-focused firms[6].

Market value is defined as the combination of market value of equity and book value of debt, while book value is the book value of assets (Fama and French 2001)[7].

Being analogous to the Baker and Wurgler (2004a,b) measure, DQD is a diversification premium. Therefore, a discount is represented by a negative value. Thus, for purpose of exposition, we multiply our measure by negative one [Equation (10)]. This way, an increase (decrease) in the discount is represented by an increasing (decreasing) DQD and any variable that is positively (negatively) related to the discount will exhibit a positive (negative) coefficient. We also control for endogeneity using fixed effects models at both firm and year level:

$$DQD = -\left[ln\left(\overline{m_i/b_i}\right)_d - ln\left(\overline{m_i/b_i}\right)_f\right] \tag{10}$$

where:

m_i = market value of equity + book value of debt of firm i;

b_i = book value of assets of firm i;

$\left(\overline{m/b}\right)_d$ = *average* m/b *of diversified firms*; and

$\left(\overline{m/b}\right)_f$ = *average* m/b *of focused firms*.

Cohen and Lou (2012) show that diversified firms exhibit more predictability and less deviation from long-run fundamental value compared to pure-play firms. As such, diversified firms are more prone to undervaluation during expansion periods. If this short-term mispricing is the driving force behind the observed diversification discount, then the argument for a catering theory with respect to corporate diversification is strengthened, as management is catering to a premium largely built upon mispricing.

To investigate this possibility, we follow Rhodes–Kropf *et al.* (2005), who illustrate how M/B can be decomposed into three parts corresponding to firm-level mispricing, industry-level mispricing, and long-run fundamental value through the following equation:

$$m_{it} = \alpha_{ojt} + \alpha_{1jt} * b_{it} + \alpha_{2jt} * ni_{it} + \alpha_{3jt} * I * ni + \alpha_{4jt} * lev + \varepsilon_{it} \tag{11}$$

where:

m = ln (market value of firm i at fiscal year-end t);

b = ln (book value of firm i at fiscal year-end t);

ni = ln (absolute value of firm i's reported net income at fiscal year-end t);

I = an indicator variable with a value of one if the reported annual net income is negative and zero otherwise; and

lev = the leverage ratio of firm i at fiscal year-end t.

Equation (11) is estimated for each year in the sample period and estimates are used to decompose M/B as follows:

$$m_{it} - b_{it} = \left(m_{it} - v_{i;\hat{\alpha}}\right) + \left(v_{i;\hat{\alpha}} - v_{i;\overline{\alpha}}\right) + \left(v_{i;\overline{\alpha}} - b_{it}\right) \tag{12}$$

where:

$v_{i;\hat{\alpha}}$ = the estimated current short-run fundamental value of firm i using current year accounting data; and

$v_{i;\overline{\alpha}}$ = the estimated long-run fundamental value of firm i using current accounting data and the long-run average estimates (α's).

The first term represents firm-specific estimated mispricing (FIRM), the second term represents estimated mispricing because of the industry (SECTOR) and the final term represents estimated true long-run fundamental value (LONG RUN). The estimates of the

three components of M/B are then used in place of the logs of the average M/B ratios [Equation (10)] in building the discount measure (DQD) to allow for a better understanding of what may be driving the observed discount (*H3*). The difference in the average firm-level mispricing between diversified and focused firms represents the aggregate firm-level mispricing on diversified firms (AFIRM), with aggregate industry mispricing (ASECTOR) and long-run fundamental value (ALONG RUN) calculated similarly. The combination of the aggregate components represents the aggregate discount measure. Therefore, in all analyses regarding the decomposition (aggregate and firm-level), we multiply these components by negative one to be consistent with our overall discount measure. Consequently, an increase in AFIRM (ASECTOR) represents an increase in systematic market mispricing relative to diversified firms.

To investigate our first two hypotheses, we use an OLS model [Equation (13)] in time series to test the relationship between the global measure of the diversification discount, DQD, and the proportion of diversified firms in the economy. We use this same model to examine the percentage of firms who remain diversified or focused, as well as those moving from single-segment to diversified, and vice-versa. In this model, the dependent variable is *DivEvent, ContDiv, RefEvent, ContFoc, or Diversified* as defined in equations five through nine. The independent variable of interest is the one year lagged DQD measure. We also use a small number of macroeconomic variables in a second specification to control for economy-wide GDP change and real market P/E:

$$Firm\ Type\,(\%) = \alpha_0 + \beta_1 * DQD_{t-1} + \Sigma(\beta_n * Vector\ of\ Controls) \tag{13}$$

We employ a multinomial logit regression model [Equation (14)] to investigate hypothesis two. For this specification, we select the base case as no change (P3). No change indicates that either the firm remains a single-segment enterprise, or the firm remains diversified. We also allow for two conditions, a diversifying event (P1) as defined in Equation (5) or a refocusing event (P2) as defined in Equation (7):

$$ln(P_j/P_J) = \alpha_0 + \beta_1 * DQD_{t-1} + \Sigma(\beta_n * Vector\ of\ Controls) \tag{14}$$

Control variables are motivated by prior literature [Campa and Kedia (2002); Villalonga (2004a); Çolak (2010)] and contain information on why a firm may wish to diversify or re-focus, as size, profitability, investment, leverage and sales growth all may influence a company's decision to diversify or re-focus. Industry characteristics (i.e. Herfindahl Index, industry profitability, industry investment in R&D and industry investment) may also provide incentive to diversify or re-focus. Lastly, the broad macroeconomic environment may influence the re-focus/diversify decision. As a result, we control for economy-wide merger activity, GDP growth rate and inclusion on the S&P 500. We also use fixed effect regression techniques at the firm and year levels.

To examine the potential impact of market mispricing on the observed discount (*H3*), we run a set of time series OLS regressions [Equation (15)] with the economy-wide discount as the dependent variable against each of the three components of the decomposed aggregate discount. If our proposition, that systematic market mispricing is driving the observed discount, is supported, then we expect to find a significant positive relationship between the discount and the firm and/or industry-level mispricing components. Macroeconomic control variables, as in Equation (13), are also included:

$$DQD = \alpha_0 + \beta_1 * DQD\ Component + \Sigma(\beta_n * Vector\ of\ Controls) \tag{15}$$

To explore further the influence of market mispricing on the observed discount, we run a series of cross-sectional OLS regressions [Equation (16)] on each of the three firm-level decomposed components of the M/B (FIRM, SECTOR, LONG RUN) against a binary independent variable equal to one if the firm is diversified, and zero otherwise. This model uses the same series of control variables as in Equation (14):

$$DQD\,Component_i = \alpha_0 + \beta_1 * Diversification\,Dummy + \Sigma(\beta_n * Vector\,of\,Controls) \quad (16)$$

This analysis allows for a direct comparison of the M/B components of diversified firms to all firms in the economy. If systematic market mispricing is driving the discount for diversified firms, then we expect a significantly positive relationship between the diversification dummy and the firm and/or industry-level mispricing component, indicating that non-diversified firms are more subject to mispricing, while diversified firms remain closer to their long-run fundamental value.

Results

Sample trends

Table I classifies the sample firms by type for each year. We observe well-known trends reported in previous literature. We observe, for most of the sample years, there are more firms that re-focus than diversify. Our sample size is also consistent with those in prior literature (Ahn, 2009; Hund *et al.*, 2010).

Figure I shows trends concerning diversified firms and the nature of our proposed discount measure. First, we observe that, until the late 1990s, there appears to be a premium (i.e. negative discount) for diversified firms when the measure (DQD) is calculated on a value-weighted basis. However, calculated on an equally weighted basis, the usual discount is observed. This observation implies that there may be a small-firm effect. This supports the results presented by Hund *et al.* (2014), who also claim that the discount is a result of comparing large mature firms to small young firms. Second, the discount changes through time and appears to be positively related to the percentage of diversified firms[8].

Table II displays the inter-temporal change in the global diversification discount (DQD). This table reports the measure based on equal-weighting (dqd_{ew}), value-weighting (dqd_{vw}), and as in Baker and Wurgler (2004a, b), the average of these two (DQD). Also, in Table II are the results for the decomposition of M/B following Rhodes–Kropf *et al.* (2005), multiplied through by negative one. When the discount is measured using equally weighted portfolios (dqd_{ew}), we observe a significantly positive average discount, but when measured using value-weighted portfolios (dqd_{vw}), the average discount is insignificantly different from zero. Further evidence that there may be a small-firm effect.

When decomposing the aggregate discount (DQD), we find that the firm-level mispricing component significantly increases the discount, while the long-run fundamental value component significantly decreases the discount. These results are also observed when considering the discount based upon value-weighted portfolios. This observation supports the idea that the observed discount is primarily driven by firm-level systematic market mispricing (*H3*), supports the findings of Cohen and Lou (2012) and provides a possible answer to the question of what drives the observed discount. Furthermore, in most years, there exists an aggregate total and firm discount, but a positive contribution from the long-run portion, supporting the hypothesis. Further, diversification may indeed be value-enhancing for shareholders in the long-term, as long-run fundamental value appears to

Year	Focused	Diversified	Diversifying	Re-Focus
1982	1,022	651	32	33
1983	1,135	671	23	27
1984	1,192	685	27	43
1985	1,254	668	23	32
1986	1,342	663	24	42
1987	1,470	648	27	42
1988	1,462	631	18	38
1989	1,423	588	15	41
1990	1,449	584	17	36
1991	1,517	634	25	31
1992	1,662	638	18	34
1993	1,868	706	15	28
1994	2,044	740	25	35
1995	2,221	792	36	42
1996	2,435	838	39	39
1997	2,481	835	57	54
1998	1,815	994	95	35
1999	1,417	817	61	55
2000	1,310	662	59	47
2001	1,161	587	25	38
2002	1,078	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
Total Firm Years	*42258*	*19796*	*934*	*1051*

Notes: Number of focused (single-segment) firms and diversified firms (multiple-segment) in the economy for the sample period. The table also shows the number of firms which engage in a diversifying or re-focusing event

Table I.
Sample firms

mitigate the short-term mispricing effect, which provides a possible answer to the question of why firms continue to diversify in light of the observed discount.

We document trends that contribute to the dispersion of the firm, industry and long-run value components. First, industry mispricing fundamentally changes following 1997. Before 1998, the amount of industry-level mispricing is, for all but a few years (1983, 1988), negligible. However, following 1997, this figure carries more weight. We attribute this to the accounting changes of SFAS 131. Second, the long-run fundamental value component exhibits a persistent premium until the period of the "dot.com" bubble's rapid growth, after which, the premium seems to disappear. Following the Global Financial Crisis, the premium returns. Both of these trends can be related to market participants' understanding of the benefits (costs) provided by internal capital markets during periods of market dislocation. These observations are supported by the theory and empirical work of Matvos and Seru (2014).

While Cohen and Lou (2012) state that diversified firms tend to stay closer to their fundamental value, they do not consider this impact of market mispricing on the observed

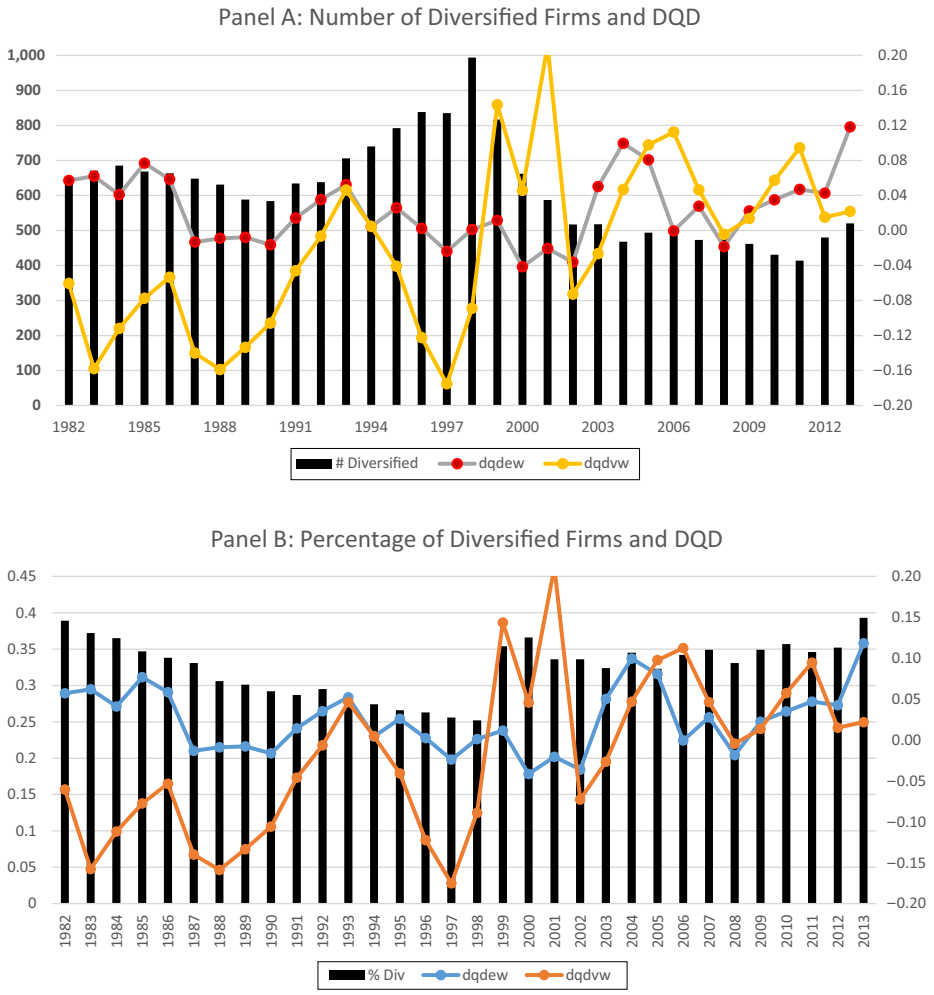

Figure 1.
Changes in diversification and refocusing trends

Notes: Panel A displays the number of diversified firms within the economy overlaid with the measure of discount. dqdvw is the value-weighted measure of the discount, while dqdew is the equally-weighted measure of the discount. Panel B displays the same measures with the percentage of diversified firms

discount. To our knowledge, this evidence has not been previously documented in the literature, but it is consistent with many theoretical studies, which show that diversification is value-maximizing, yet a discount may still arise.

Time-series and cross-sectional results

To test the implications of the Anjos (2010) model, we first compare the proportion of diversified firms in each year to the level of discount in the previous year. Per our first

Table II. DQD Measure and decomposition

Year	DQD	FIRM	SECTOR	LONGRUN	dqdew	firmew	sectorew	longrunew	dqdvw	firmvw	sectorvw	longrunvw
1982	0.00	0.07	0.00	−0.08	0.06	0.07	0.00	−0.01	−0.06	0.08	0.00	−0.15
1983	−0.05	0.09	−0.05	−0.09	0.06	0.07	−0.01	0.00	−0.16	0.11	−0.09	−0.18
1984	−0.04	0.04	0.03	−0.11	0.04	0.05	0.01	−0.02	−0.11	0.03	0.05	−0.19
1985	0.00	0.07	0.01	−0.08	0.08	0.07	0.01	−0.01	−0.08	0.06	0.01	−0.15
1986	0.00	0.07	0.02	−0.08	0.06	0.05	0.02	−0.01	−0.05	0.08	0.02	−0.15
1987	−0.08	0.02	0.02	−0.12	−0.01	0.01	0.00	−0.03	−0.14	0.04	0.03	−0.21
1988	−0.08	0.00	0.05	−0.13	−0.01	0.00	0.01	−0.03	−0.16	−0.01	0.09	−0.24
1989	−0.07	0.02	0.00	−0.09	−0.01	0.01	0.01	−0.03	−0.13	0.04	−0.01	−0.16
1990	−0.06	0.04	−0.01	−0.10	−0.02	−0.01	0.00	−0.01	−0.11	0.09	−0.02	−0.18
1991	−0.02	0.02	0.01	−0.05	0.01	0.01	0.02	−0.01	−0.05	0.04	0.00	−0.09
1992	0.01	0.03	0.00	−0.01	0.04	0.02	0.01	0.01	−0.01	0.04	−0.02	−0.03
1993	0.05	0.02	0.00	0.03	0.05	0.02	0.00	0.03	0.05	0.02	0.00	0.03
1994	0.00	0.04	0.01	−0.04	0.00	0.01	0.00	0.00	0.00	0.07	0.02	−0.08
1995	−0.01	0.05	0.01	−0.06	0.03	0.03	0.01	−0.02	−0.04	0.06	0.01	−0.11
1996	−0.06	0.02	−0.01	−0.06	0.00	0.01	0.00	−0.01	−0.12	0.03	−0.03	−0.12
1997	−0.10	−0.03	0.00	−0.07	−0.02	−0.01	−0.01	−0.01	−0.18	−0.06	0.01	−0.13
1998	−0.04	0.06	−0.06	−0.05	0.00	0.01	−0.02	0.01	−0.09	0.11	−0.09	−0.11
1999	0.08	0.09	−0.01	0.00	0.01	0.02	−0.01	0.00	0.14	0.16	−0.02	0.00
2000	0.00	0.07	−0.06	−0.01	−0.04	0.00	−0.04	0.00	0.05	0.15	−0.08	−0.03
2001	0.15	0.14	0.00	0.00	−0.02	0.01	−0.05	0.02	0.21	0.28	−0.04	−0.03
2002	−0.05	−0.04	−0.05	0.03	−0.04	−0.02	−0.05	0.04	−0.07	−0.06	−0.04	0.03
2003	0.01	0.00	0.00	0.02	0.05	0.03	0.00	0.03	−0.03	−0.03	0.00	0.01

(continued)

Table II.

Year	DQD	FIRM	SECTOR	LONGRUN	dqdew	firmew	sectorew	longrunew	dqdvw	firmvw	sectorvw	longrunvw
2004	0.07	0.06	0.03	−0.02	0.10	0.04	0.03	0.03	0.05	0.08	0.03	−0.06
2005	0.09	0.02	0.06	0.00	0.08	0.02	0.05	0.01	0.10	0.03	0.08	−0.01
2006	0.06	0.01	0.06	−0.01	0.00	−0.02	0.03	−0.01	0.11	0.04	0.09	−0.01
2007	0.04	0.11	−0.01	−0.06	0.03	0.01	0.00	0.01	0.05	0.22	−0.03	−0.14
2008	−0.01	0.09	−0.02	−0.08	−0.02	0.02	−0.06	0.02	0.00	0.15	0.01	−0.17
2009	0.02	0.07	−0.05	−0.01	0.02	0.04	−0.05	0.04	0.01	0.11	−0.04	−0.05
2010	0.05	0.06	0.04	−0.05	0.03	0.00	0.02	0.01	0.06	0.12	0.06	−0.12
2011	0.07	0.07	0.03	−0.03	0.05	0.03	0.01	0.01	0.09	0.11	0.06	−0.07
2012	0.03	0.03	0.05	−0.05	0.04	0.01	0.03	0.01	0.02	0.05	0.07	−0.11
2013	0.07	0.10	0.08	−0.10	0.12	0.06	0.06	0.00	0.02	0.14	0.10	−0.21
Avg	*0.032*	*0.075****	*0.005*	*−0.049****	*0.024****	*0.021****	*0.000*	*−0.003*	*−0.04*	*0.130****	*−0.01*	*−0.100****
Std Error	*0.034*	*0.006*	*0.034*	*0.008*	*0.007*	*0.004*	*0.005*	*0.003*	*0.069*	*0.064*	*0.009*	*0.013*
t-stat	*0.945*	*2.367*	*0.890*	*−6.266*	*3.476*	*4.744*	*0.085*	*−0.890*	*−0.581*	*2.033*	*1.184*	*−7.528*

Notes: Time series measure of discount per year as well as the average and statistical power. The three separate calculations reflect the three averages: DQD follows the methods of Baker and Wurgler (2004a) as the average of the value-weighted and equally weighted measures, dqd_{vw} is the measure of discount using value-weighted portfolios, and dqd_{ew} is the measure of discount using equally-weighted portfolios for both diversified and focused firms. Also shown is the three-part decomposition of the M/B measure under all discount measures. ***, ** and * denote significance at 1, 5 and 10% levels, respectively

hypothesis, if the Anjos (2010) model holds, then we should observe a positive relationship. However, if managers are catering their real business strategies to investor perception, we would observe a negative relationship.

We use a time-series approach to test directly our first hypothesis in Table III. In the first specification, the actual number of diversified firms is the dependent variable, while the one-year lagged measure of the discount (DQD) is the independent variable of interest. In the second specification, we switch the number of diversified to the percentage of diversified firms. In the univariate test (panel A), we observe a negative coefficient for the lag of DQD for both specifications; however, while not significant for the proportion of diversified firms, it is both statistically and economically significant for the number of diversified firms. This supports catering theory, while countering the Anjos (2010) model. We posit that the insignificant coefficient on the percentage of diversified firms is driven by the relatively stable percentage of diversified firms in the economy following 1998, which is in line with the findings presented by both Ahn (2009) and Basu (2010).

We also investigate the two competing theories by considering how the percentage of each type of firm changes in response to the discount measure (*H2*). Table III reports these results, in specifications three through six, with the dependent variables as those described by equations five through eight. In the univariate analysis (Panel A), we observe support for a catering theory of diversification, as the decision to remain diversified is negatively related to the discount, while the decision to re-focus is positively related to the discount. However, when adding the macroeconomic control variables (Panel B), we observe stronger evidence in favor of catering theory as it relates to our second hypothesis, as the decision to remain diversified and the decision to diversify are both negatively related to the discount, while the decision to re-focus is positively related to the discount.

Of note is the positive significant constant term in all specifications in Panel A. This is an indication that, regardless of the effect of the lagged discount on the decision to diversify (re-focus), there is always a significant number (proportion) of diversified firms in the economy, as well as a significant proportion of firms who remain diversified/focused, or experience a diversifying/re-focusing event, on average, through the sample period. This highlights the importance of continued research in this area. As further analysis into our second hypothesis, cross-sectional tests controlling for firm and industry characteristics appear in Table IV. Specifically, we run multinomial logit regressions to analyze the relationship betweenthe diversification discount and the probability of the firm to diversify or re-focus.

Again, we find strong support for a catering theory of corporate diversification. In analyzing the decision to diversify or re-focus, the lagged discount (DQD_{t-1}) is the independent variable of interest. Panel A includes many control variables, motivated by extant literature, which could influence a firm's choice[9]. Panel B also includes the traditional firm-level measure of the diversification discount, defined as the implied enterprise value differential (Rudolph and Schwetzler, 2014). We include this measure as it may be argued that our aggregate measure is meaningless to firm's management, as they are only concerned with the operation of their firm and not with broad investor opinion regarding diversified firms.

As further support of catering theory, we observe a significantly negative relationship between the aggregate discount and the decision to diversify, and a significantly positive relationship between the discount and the decision to re-focus. However, we do note the loss of statistical significance of the DQD measure on the decision to re-focus when we include the traditional measure of discount. Further, as observed by the RRR, DQD is the largest contributor to the diversify decision, even when controlling for firm-level discount (implied EV ratio). Regarding controls, all specifications are consistent with the results of Çolak (2010) regarding diversifying/re-focusing decisions of firms, as items that influence the choice to

Table III.
Time-series investigation

	(1) # Diversified	(2) % Diversifed	(3) %DivEvent	(4) %ContDiv	(5) %RefEvent	(6) %ContFoc
Panel A						
DQD_{t-1}	−183.42** (0.0492)	−0.0127 (0.7604)	−0.0067 (0.1694)	−0.0896*** (0.0015)	0.0070* (0.0964)	−0.0386 (0.3715)
Constant	622.92*** (0.0000)	0.3265*** (0.0000)	0.0219*** (0.0000)	0.9540*** (0.0000)	0.0403*** (0.0000)	0.9914*** (0.0000)
N	31	31	31	31	31	31
$Adj-R^2$	0.065	0.003	0.019	0.044	0.022	0.006
Panel B						
DQD_{t-1}	−42.68 (0.3761)	−0.0281 (0.4102)	−0.0145*** (0.0001)	−0.0895*** (0.0029)	0.0067* (0.0649)	0.0554 (0.3618)
GDP	−23.49 (0.4482)	0.0037 (0.3258)	0.0016** (0.1930)	−0.0071 (0.3351)	−0.0006 (0.4294)	−0.0025 (0.6114)
Real P/E	12.90*** (0.0000)	0.0002 (0.5781)	0.0001 (0.4315)	−0.0014 (0.5578)	0.0000 (0.9915)	−0.0034* (0.0743)
Post '97	−209.10*** (0.0000)	0.0622*** (0.000)	0.0136*** (0.0000)	−0.0538 (0.1142)	−0.0009 (0.8284)	−0.1276*** (0.0000)
Constant	439.22*** (0.0000)	0.2850 (0.0000)	0.0065 (0.2464)	1.0331*** (0.0000)	0.0425*** (0.0000)	1.088*** (0.0000)
N	31	31	31	31	31	31
$Adj-R^2$	0.732	0.439	0.546	0.190	0.036	0.651

Notes: Regressions on the percentage of diversified and focused firms, as well as the percentage of firms changing their firm type, within the economy per year as dependent variable. In column 1, the dependent variable is number of diversified firms. DivEvent is the percentage of firms that diversify for the first time compared to all focused firms in the prior year. ContDiv is the percentage of firms remaining diversified. . RefEvent is the percentage of diversified firms that elect to become single-segment firms compared to all diversified firms in the prior year. ContFoc is the percentage of firms that remain focused. DQD is the measure of aggregate discount using the average of both an equally-weighted portfolio and a value weighted portfolio. GDP is the year over year change in real GDP. Real P/E is a measure of the real price-to-earnings ratio of the S&P 500. Post '97 is an indicator variable taking the value of one for the years after the implementation of SFAS 131. ***, ** and * denote significance at 1, 5 and 10%, respectively. The standard errors are clustered by year

Table IV.
Firm level multinomial logit

	Panel A				Panel B			
Independent variables	(1) Ln (P1/P3) Diversify DQD	RRR Diversify	(2) Ln (P2/P3) Refocus DQD	RRR Refocus	(1) Ln (P1/P3) Diversify DQD	RRR Diversify	(2) Ln (P2/P3) Refocus DQD	RRR Refocus
DQD_{t-1}	−1.117** (0.0190)	3.057	0.217** (0.0432)	0.805	−1.099** (0.0114)	3.000	0.178 (0.1150)	0.837
$EVratio_{t-1}$					−0.065 (0.1426)	1.067	−0.104*** (0.0080)	1.109
Size	0.090*** (0.0002)	1.094	0.013 (0.5666)	1.013	0.040 (0.3498)	1.041	−0.064* (0.0895)	0.938
Profitability	0.089** (0.0220)	1.093	−0.156* (0.0587)	0.856	0.087** (0.0253)	1.091	−0.151* (0.0780)	0.860
Investment	0.070** (0.0136)	1.073	−0.775** (0.0202)	0.460	0.077*** (0.0041)	1.080	−0.693** (0.0269)	0.500
R&D	−0.217 (0.3092)	0.805	−2.805*** (0.0001)	0.061	−0.225 (0.3000)	0.797	−2.947*** (0.0002)	0.053
Leverage	0.021 (0.8960)	1.022	0.644*** (0.0000)	1.903	0.025 (0.8762)	1.025	0.641*** (0.0000)	1.898
Sales Growth	−0.000 (0.2812)	1.000	−0.045*** (0.0002)	0.956	−0.000 (0.2859)	1.000	−0.051*** (0.0000)	0.950
Ind. Ag. Profit	−0.022** (0.0297)	0.978	−0.015 (0.4384)	0.985	−0.022** (0.0290)	0.978	−0.014 (0.4641)	0.986
Ind. Ag. Inv.	0.010** (0.0310)	1.010	−0.024 (0.1446)	0.976	0.012*** (0.0075)	1.012	−0.017 (0.2562)	0.983
Ind Ag. R&D	−0.055*** (0.0016)	0.946	−0.006 (0.8072)	0.994	−0.055*** (0.0015)	0.947	−0.008 (0.7480)	0.993
SP	−0.358*** (0.0078)	0.699	0.523*** (0.0005)	1.687	−0.373*** (0.0065)	0.689	0.493*** (0.0013)	1.638
GDP	0.082* (0.0699)	1.085	0.072*** (0.0027)	1.075	0.077* (0.0782)	1.080	0.068*** (0.0046)	1.070
Ind. HHI	0.840 (0.1491)	2.317	0.156 (0.6961)	1.169	0.927 (0.1277)	2.528	−0.027 (0.9444)	0.974
Merger Count	0.001 (0.1173)	1.001	−0.000 (0.2133)	1.000	0.001* (0.0883)	1.001	−0.000 (0.2914)	1.000
Merger Value	−0.001 (0.4619)	0.999	0.001 (0.1293)	1.001	−0.001 (0.3962)	0.999	0.001 (0.2002)	1.001
Post '97	0.713*** (0.0021)	2.039	0.123 (0.3047)	0.136	0.751*** (0.0009)	2.119	0.177 (0.1802)	1.193
Constant	−5.961*** (0.0000)	0.003	−4.350*** (0.0000)	0.002	−5.707*** (0.0000)	0.003	−3.944*** (0.0000)	0.019
Total observation			48,240					
Diversifying			934		**P1 =**		1.94%	
Re-Focusing			1051		**P2 =**		2.18%	
No Change			46,225		**P3 =**		95.89%	

Notes: Multinomial logistic regression, following the model; $ln(P_j/P_f) = \beta_{1j} * DQD_i + \Sigma(\beta_j' * Z_i)$. Where Z_i is a vector of control variables as defined in Appendix. The base-case is the assumption of no-change in corporate diversification level (i.e. remain diversified or focused). DQD is the measure of aggregate discount using the average of both an equally-weighted portfolio and a value weighted portfolio. In Panel B, the model includes the traditional measure of diversification discount at the firm level: the log of the enterprise value of the firm divided by the imputed enterprise value of the firm. ***, ** and * denote significance at 1, 5 and 10%, respectively. The standard errors are clustered by firm

diversify are primarily macroeconomic in nature, or related to industry characteristics, while the choice to re-focus is also heavily dependent upon firm-level characteristics.

Table V extends the time series analysis of our proposition that systematic market mispricing is the catalyst behind the observed diversification discount (*H3*). Specifically, we estimate the impact of each component of the aggregate discount on the entire discount. Panel A presents the univariate analysis, while Panel B includes macroeconomic controls in a multivariate framework. In both analyses, the aggregate firm-level mispricing component (AFIRM) has a highly significant (1 per cent) positive impact on the overall discount, while the aggregate sector-level mispricing component (ASECTOR) is significant at 10 per cent, and the aggregate long-run fundamental value component (ALONG RUN) does not appear to significantly contribute to the discount. Further, the Adj-R^2 of the firm-level specification is 94 per cent, compared to 1 per cent for the sector-level, and 11 per cent for the long-run fundamental value specifications. In support of our third hypothesis, this analysis shows that systematic firm-level mispricing is the dominant contributor to the overall discount on diversified firms. This finding is consistent with Cohen and Lou (2012) and their findings of return predictability in diversified firms, as the firm-level mispricing component appears to be persistent and contributes significantly to the observed discount.

Table VI provides a cross-sectional examination of our third hypothesis using the firm-level decomposed market-to-book. Each specification represents one component of the firm-level decomposed M/B against a binary independent variable equal to one if the firm is diversified, and zero otherwise. This analysis provides an indication of how each component of the market-to-book of diversified firms compares to that of all firms. Since the components are all multiplied by negative one (as in the aggregate analysis), a positive (negative) coefficient is an indication of a lower (higher) M/B component for diversified firms relative to all firms.

The first and second specifications indicate that the firm-level and industry-level mispricing components are lower than those of all firms by 4.4 and 0.5 per cent, respectively. This result is consistent with the findings in Table V that firm-level and industry-level mispricing are significant drivers of the discount on diversified firms. However, the third specification in this

Independent variables	(1) DQD	(2) DQD	(3) DQD
Panel A			
AFIRM	1.030*** (0.000)		
ASECTOR		0.526* (0.054)	
ALONG RUN			1.427 (0.107)
Constant	0.045*** (0.000)	−0.030 (0.404)	−0.101 (0.178)
N	32	32	32
Adj-R^2	0.936	0.009	0.106
Panel B			
AFIRM	1.003*** (0.000)		
ASECTOR		1.183* (0.056)	
ALONG RUN			0.731 (0.134)
GDP	0.004 (0.254)	0.029 (0.191)	0.021 (0.318)
Real P/E	−0.002 (0.118)	−0.008 (0.148)	−0.005 (0.346)
Constant	0.070** (0.016)	0.073 (0.248)	−0.022 (0.789)
N	32	32	32
Adj-R^2	0.943	0.182	0.159

Notes: Time-series regressions of the impact of each aggregate decomposed discount component on the overall aggregate discount. ***, ** and * denote significance at 1, 5 and 10%, respectively. The standard errors are clustered by firm

Table V.
Time series investigation of the decomposed DQD measure

analysis is very interesting, as it shows that the long-run fundamental value component is significantly higher than that of all firms by 1.9 per cent. This shows that, while market mispricing is driving the observed discount higher, the long-run fundamental value of diversified firms actually works to reduce the mispricing discount, contributing to the literature that corporate diversification strategies may indeed be value-maximizing in the long-run. Important to note from this analysis is that the combined estimated economic impact of these components to the discount is 3 per cent (4.4 + 0.5 − 1.9 per cent), which is roughly equivalent to the average discount of 3.2 per cent reported in the univariate analysis in Table II.

The conflicting results regarding the long-run fundamental value component between tables five and six lie in the context of the analyses. Table V compares the aggregate components (AFIRM, ASECTOR, and ALONG RUN) to the total discount across time. The lack of significance for the long-run value when compared to the total aggregate discount indicates that it is the firm-level mispricing component that drives the observed economy-wide diversification discount. In Table VI, we use the actual firm-level decomposed values in a cross-sectional analysis. In this analysis, we are not investigating what is driving the observed economy-wide discount, but rather the contribution of each component to the observed firm-level discount/premium. These results show that there is a discount for diversified firms, on average. The total discounted value, approximately 3 per cent, is smaller than the discount reported in prior literature (Rudolph and Schwetzler (2014) report a 6 per cent discount), but our measure exhibits less small-firm bias.

Conclusion

We consider two competing theories regarding the often-observed diversification discount. The model proposed by Anjos (2010) predicts a positive relationship between the discount and the proportion of diversified firms based on asymmetric diversification and re-focusing

Independent variables	(1) Firm	(2) Sector	(3) Long Run
Diversified Firm	0.044*** (0.000)	0.005*** (0.007)	−0.019*** (0.000)
Size	−0.066*** (0.000)	−0.014*** (0.000)	−0.017*** (0.000)
Profitability	−0.005 (0.761)	−0.002 (0.687)	−0.009* (0.078)
Investment	0.024*** (0.004)	0.003 (0.224)	0.033** (0.029)
R&D	−0.030 (0.255)	−0.015 (0.162)	−0.060* (0.056)
Leverage	0.009 (0.598)	0.018** (0.026)	0.206*** (0.000)
Sales Growth	−0.000*** (0.004)	−0.000 (0.587)	−0.000 (0.316)
Ind. Ag. Profit	0.003*** (0.000)	0.001*** (0.000)	0.006*** (0.000)
Ind. Ag. Inv.	0.001 (0.201)	0.002*** (0.000)	0.002*** (0.000)
Ind Ag. R&D	0.003* (0.059)	0.000 (0.394)	−0.001 (0.224)
SP	0.135*** (0.000)	0.049*** (0.000)	−0.036*** (0.001)
GDP	−0.003*** (0.001)	0.003*** (0.000)	−0.002*** (0.006)
Ind. HHI	0.073* (0.062)	0.024*** (0.001)	0.099*** (0.000)
Merger Count	0.000*** (0.000)	−0.000*** (0.000)	−0.000*** (0.000)
Merger Value	−0.000*** (0.000)	0.001*** (0.000)	0.000*** (0.000)
Post '97	0.050*** (0.000)	−0.049*** (0.000)	−0.026*** (0.000)
Constant	0.327*** (0.000)	0.208*** (0.000)	−0.383*** (0.000)
N	49617	49617	49617
Adj-R^2	0.076	0.161	0.125

Notes: Results of firm-level decomposed market-to-book value of each firm as the dependent variable. Diversified Firm is an indicator variable equal to one if the firm is diversified and zero otherwise; ***, ** and * denote significance at 1, 5 and 10%, respectively. The standard errors are clustered by firm

Table VI. Cross-sectional investigation of the decomposed market-to-book value

costs, while catering theory predicts this relationship to be negative based upon the eagerness of management to cater to the desires of the market. We apply an aggregate measure of the discount for diversified firms by constructing a time-series average of the M/B differential between a portfolio of diversified and single-segment firms and find strong evidence in support of a catering theory with respect to corporate diversification. Both statistical and economic significance is particularly strong with decisions related to diversification.

In addition, we decompose the discount into firm-level, industry-level, and long-run fundamental value components and find evidence that systematic firm-level market mispricing is the primary driver behind the aggregate discount and that the discount on individual diversified firms is reduced by their long-run fundamental value. This lends support to the literature that finds corporate diversification strategies to be value-maximizing. To our knowledge, this is a novel finding regarding the diversification discount and provides a possible explanation for why so many diversified firms exist despite the observed discount.

From a practical standpoint, we believe these findings show why diversified firms are as ubiquitous and important within the economy, as, on average, diversified firms appear to exhibit a fundamental long-run premium. Further, the documented discount appears to be driven more by systematic short-term firm-level mispricing in the market than by long-run fundamental value. Thus, efficient management is less likely to undergo costly refocusing efforts to unwind a discount that is not based upon fundamentals germane to the business. While we are confident that our findings contribute to the extant literature regarding the diversification discount, we acknowledge that the conclusions of this study would greatly benefit from the existence of a formal theoretical model of catering theory as it relates to corporate diversification, as well as the ability to estimate reliably the potential re-focusing costs of diversified firms.

Notes

1. Campa and Kedia (2002), Villalonga (2004a) and Villalonga (2004b).
2. Matvos and Seru (2014); Volkov and Smith (2015); Hund *et al.* (2014); and Kuppuswamy and Villalonga (2016).
3. See also Li and Lie (2006) and Jiang *et al.* (2013).
4. Proposed by Aghion and Stein (2008) and tested by Glushkov and Bardos (2012).
5. Berger and Hann (2003).
6. Averaging is done using both equal and value-weighting.
7. 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).
8. This observation is in support of previously reported findings. Refer to Volkov and Smith (2015) or Kuppuswamy and Villalonga (2016).
9. Campa and Kedia (2002); Villalonga (2004a); Çolak (2010) motivate our control variables.

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Appendix. Control variables

- GDP: US GDP Growth
- Real P/E: Real Price-to-Earnings for S&P 500 firms, from Robert Shiller's Database
- Post '97: An indicator variable equal to 1 if the year is after 1997
- Size: Ln (Total Firm Assets)
- Profitability: EBIT/Sales
- Investment: CAPX/Sales
- R&D: R&D/Sales
- Leverage: Long-Term Debt/Sales
- Sales Growth: Avg. of past three years sales growth
- Ind. Avg. Profitability: Industry Mean of EBIT/Sales by 3 digit SIC Code
- Ind. Avg. Investment: Industry Mean of CAPX/Sales by 3 digit SIC Code
- Ind. Avg. R&D: Industry Mean of R&D/Sales by 3 digit SIC Code
- Post '97: Indicator variable if after SFAS 131 (implemented in 1998) 0 otherwise
- SP: Indicator if S&P 500 firm
- GDP: Real annual growth rate
- IND HHI: Industry average Herfindahl Index
- Merger Count: Number of mergers annually
- Merger Value: Dollar value of mergers/Market Capitalization of CRSP Database

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