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## Diversification discount and investor sentiment <sup>☆</sup>

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### ABSTRACT

While previous research has linked the diversification discount to suboptimal managerial decisions, recent empirical work and methods have shown these relationships are not as strong. A rational learning framework indicates the diversification discount is related to economic activity. Building on this framework, we test and find support for the hypothesis that investor sentiment explains the diversification discount. Investor sentiment favors riskier firms when sentiment is high, thereby increasing returns and relative valuations. As a result, diversified firms imputed value based on these multiples leads to a larger diversification discount and reverses when sentiment falls.

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## 1. Introduction

Multi-segment firms typically trade at a value that is less than a combination implied by the sum of single-segment firm multiples. The resulting diversification discount is a well-documented phenomena in the empirical research, with no shortage of theoretical frameworks and empirical investigations to explain its existence. To complicate the research, the diversification discount is not constant, but varies over time and across firms. Until recently, the general consensus interpreted the diversification discount as a measure of the destruction of firm value. With this interpretation of the diversification discount, early studies have shown the decrease in value resulting from operating a multi-segment firm was due to inefficient internal capital markets (Lamont, 1997; Stulz, 1990; Rajan, Servaes, & Zingales, 2000), increased agency costs (Denis, Denis, & Sarin, 1997; Jensen, 1988), and increased informational asymmetries (Harris, Kriebel, & Raviv, 1982).

However, more recent research has attributed the diversification discount to other related factors, both endogenous and exogenous to the firm. In particular, Hund, Monk, and Tice (2010) use a framework of rational learning models (see Pastor & Veronesi, 2003) to offer an alternative explanation of the diversification discount. As a result of learning, the markets have less uncertainty about future earnings and profitability of diversified firms compared to single segment firms and therefore a decreased discount rate associated with the decreased risk. Further, they find the diversification discount varies across time and is associated with the business cycle. We posit the diversification discount is not only related to actual economic conditions, but to investors' expectations as proxied by investor sentiment. The reasoning for this twofold. First, traditional measures of the diversification discount rely upon an imputed value of the diversified firms based on single segment firms. As Baker and Wurgler (2006) and Baker, Wang, and Wurgler (2008) demonstrate, smaller, riskier firms' values are heavily

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influenced by investor sentiment. By extension and construction, the measure of the diversification discount will be affected by the level of investor sentiment. Secondly, investor sentiment also indicates the overall appetite for risk. As diversified firms have more predictable future earnings and profitability, the relative valuation of diversified firms compared to single segment firms should be related to investor sentiment levels.<sup>1</sup>

We find the diversification discount increases in periods when investor sentiment is high and diminishes in periods of low investor sentiment. As a result, in periods of low (high) investor sentiment, the relative returns for diversified firms are higher (lower) than for more focused firms. The results are broadly consistent with the findings of Baker and Wurgler (2006) as well as Hund et al. (2010) and offer an explanation for the time varying nature of the diversification discount. This study adds to the literature related to investor sentiment as well as to the diversification discount.

This article is organized as follows. Section II presents the relevant literature. Section III describes the empirical methodology, construction of diversification discount, measures of diversification, and measures of investor sentiment. Section IV describes the data. Section V presents the multivariate results, Section VI describes the constructs conditional tests, and Section VII concludes.

## 2. Relevant literature

### 2.1. The diversification discount

A well established and extensive literature examines the value relevance of company diversification. A discount related to company diversification has been documented in many studies, including Lang and Stulz (1994), Berger and Ofek (1995) and Denis, Denis, and Yost (2002). Lang and Stulz (1994) use Tobin's  $q$  as a measure of firm value and find that Tobin's  $q$  and diversification were inversely related throughout the 1980s. Even after the necessary robustness checks, the diversification discount failed to diminish. Using COMPUSTAT segment-level data, Berger and Ofek (1995) probe diversification during the 1986–1991 time period. They compare the sum of the imputed stand-alone value of the segments with the actual value of the conglomerates and find that the values of conglomerates during the sample period experienced a discount of 13–15% with respect to their focused counterparts. Denis et al. (2002) find that global diversification is a value-destroying proposition, and any increase in global diversification results in a significant increase in the diversification discount. Explanations for the diversification discount center around arguments related to inefficiencies related to larger enterprises, increased agency problems, asymmetric information, and inefficient internal capital markets as mentioned previously. Lamont and Polk (2001, 2002) show diversification destroys value in part because the expected returns for diversified firms are higher than focused firms. Furthermore, the diversity of investment opportunities increases the diversification discount.

A growing area of literature explains the diversification discount, in part, as measurement error. Campa and Kedia (2002) highlight the pertinence of the endogeneity of diversification decisions and firm characteristics. When firm characteristics and fixed effects are controlled for, the diversification discount can turn into a diversification premium. Villalonga (2004) argues that the observed diversification discount is an artifact of biased samples that exclusively use COMPUSTAT segment data. Other methodological issues also cast doubt on the diversification discount. Glaser and Muller (2010) find the diversification discount is in part due to mismeasurement of the value of the firm's debt, using book value of debt instead of market value. Custodio (2014) finds diversified firms are more likely to have engaged in mergers and acquisitions, resulting in the creation of goodwill assets. The removal of goodwill from the book value of the firm before computing  $q$ -based valuation measures of the firm substantially reduces the reported diversification discount. Finally, Whited (2001) casts doubt on explaining the diversification discount as a function of inefficient internal capital markets. After correcting for measurement error in  $q$ , the measure of inefficient allocation of investment no longer exists.

However, Hoehle, Schmid, Walter, and Yermack (2012) still find evidence of a diversification discount after controlling for endogeneity, but a substantial part of the diversification discount is explained or reduced with the inclusion of governance variables. The authors conclude that poor corporate governance contributes to the diversification discount and these results hold for differing econometric modeling techniques. Hund et al. (2010) apply a rational learning model to the diversification discount issue, and find evidence the diversification discount is not due to suboptimal managerial decisions, but is related to market expectations and the uncertainty of future profitability of firms. Essentially, as the market observes, learns, and is able to reduce the uncertainty about a firm's future prospects, the expected return adjusts to account for the lower uncertainty, reducing the diversification discount. In addition, they predict the diversification discount will vary with the business cycle, and lower idiosyncratic return volatility for diversified firms. When business cycles are in an expansion,

<sup>1</sup> Considering that the preponderance of wealth is managed by institutional investors (Rubin & Smith, 2009) and these investors are rational decision makers (Barber & Odean, 2000; Barber & Odean, 2008), it is then reasonable to think that in times of reduced appetite for risk taking, institutional investors would reallocate capital to less risky opportunities. However, institutional investors are guided by investment policy statements that often prohibit large liquidations and demand strict adherence to long-run strategic investment objectives (Georgy & Malliaris, 2012). Equally important, professional managers avoid large deviations from style benchmarks to safeguard their respective compensations (Chan, Chen, & Lakonishok, 2002; Lakonishok, Shleifer, & Vishny, 1994). The intuitive conclusion then is that diversified firms offer a rather cost-effective means of acquiring more defensive stocks against adverse market fluctuations. Transaction costs associated with the purchase of stocks of a diversified firm can be markedly less than the cost to purchase all of the stocks with commensurate component risks in the diversified firm's asset portfolio. This indeed is in line with a recent McKinsey Quarterly article, Dalby and Smit (2004, p.15) indeed make the case that diversified firms in basic material are the only assets that come close to the risk-return efficient frontier because "... they can exploit the negative correlations among the business cycles of different commodities."

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