

Research Roundtable Discussion: The Diversification Discount

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Abstract:

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As teachers, we often face the challenge of helping MBA students understand important managerial issues where research is unsettled. This is one of a series of pieces written as a quick introduction to a controversial area which many of us have to touch upon in our courses: the diversification discount.

Belén Villalonga has written an overview of some of the issues surrounding the diversification discount and assembled a selected bibliography on the topic. We then invited a small number of leading researchers and teachers in the field to comment on how they treat this topic in the classroom.

JEL Classifications: G34

Case and Teaching Paper Series

Research Roundtable Discussion: The Diversification Discount

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Document available at: SSRN electronic paper collection <http://ssrn.com/abstract=402220>

Date: April 24, 2003

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1. Introduction

As teachers, we often face the challenge of helping MBA students understand important managerial issues where research is unsettled. This is one of a series of pieces written as a quick introduction to a controversial area which many of us have to touch upon in our courses: the diversification discount. A more comprehensive review of the topic can be found in Martin and Sayrak (2003).

The conventional wisdom among financial economists and practitioners during the early 1990s was that, on average, diversified firms trade at a discount. In recent years, however, a number of academics have departed from this view. One way to understand the disagreement is by asking ourselves what we really mean when we say that diversified firms trade a discount, i.e. “a discount with respect to what?”

There are three different things that people usually mean when they talk about the discount. To help our memory, we can label them like the three forms of market efficiency: strong, semistrong, and weak. Weak form refers to the fact that diversified firms trade at a discount relative to single-segment firms in the same industries. This is the main finding of Lang and Stulz (1994) and Berger and Ofek (1995), which gave rise to the now large finance literature about corporate diversification. Semistrong form is the notion that diversified firms trade at a discount relative to what those firms would be worth if they were split into pieces. This view is supported by evidence that refocusing spin-offs and divestitures create shareholder value (Comment and Jarrell, 1995; John and Ofek, 1995, etc.). Strong form means that diversified firms trade at a discount relative to what those firms would be worth if they had not diversified. Note that this is a stronger statement than the previous. A strong-form discount implies that diversified firms destroyed value by engaging in diversification. A semistrong-form discount implies that diversified firms are destroying value by *staying diversified*. This leaves room for the possibility that diversification may have been value-creating for those same firms at an earlier point in time. The strong-form discount leaves no room for that possibility.

Theoretical background

There is no shortage of theories to justify the existence of a diversification discount in any of its forms. A strong-form discount can be explained by various agency arguments: risk reduction (Amihud and Lev, 1981); empire-building (Jensen, 1986); or managerial entrenchment (Shleifer and Vishny, 1989). It can also be explained by inefficient investment (inefficient internal capital markets), as argued by Scharfstein (1998) Scharfstein and Stein (2000), or Rajan et al. (2000). The semistrong form can be explained by any theory of corporate refocusing: information asymmetries (Krishnawami and Subramaniam, 1999); analyst specialization (Gilson et al., 2001); secular decrease in transaction costs of external funds (Matsusaka and Nanda, 2002); or market liquidity (Schlingemann et al., 2002). Obviously, any of the theories about a strong-form discount can also be (and has been) used as a theory of refocusing, and hence is a potential explanation for a semistrong-form discount (Comment and Jarrell, 1995; Daley et al., 1997; Berger and Ofek, 1999). The weak-form discount is explained by several recent theories suggesting that the existence of a discount (in that form) is consistent with value-maximizing behavior. In other words, there is a discount, but diversification does not destroy value (Fluck

and Lynch, 1999; Zuckerman, 1999; Burch et al., 2000; Matsusaka, 2001; Bernardo and Chowdry, 2002; Maksimovic and Phillips, 2002; Gomes and Livdan, 2003).

There are also many theories about the benefits of diversification: efficient internal capital markets (Alchian, 1969; Weston, 1970; Williamson, 1975; Gertner et al., 1994; Stein, 1997); debt coinsurance (Lewellen, 1971); use of non-tradable resources (Penrose, 1959); economies of scope (Panzar and Willig, 1979; Teece, 1980, 1982); or market power (Scott, 1982; Tirole, 1995). Any of these theories may be used to justify a diversification premium just like theories of diversification costs such as agency or inefficient investment are often used to justify a discount.

Students will be forced to debate these issues not just in classrooms, but also in executive suites. It should therefore be useful for them to be aware of the richness of arguments on both sides of the debate. But because the relative power of these arguments is an empirical question, it may also be useful to review the evidence more carefully. The following table summarizes some of the main results discussed below.

Table 1. Estimates of the diversification discount

	Uncorrected (univariate or multivariate regressions)	Corrected for sample selection bias, data, or method issues	Measure
Lang and Stulz (1994)	-0.27 to -0.54		Tobin's q
Berger and Ofek (1995)	-13% to -15%		Assets and sales multipliers
Servaes (1996)	-0.06 to -0.59		Tobin's q
Lins and Servaes (1999)	0% Germany -10% Japan -15% U.K.		Assets and sales multipliers
Lins and Servaes (2002)	-7% (7 Asian emerging markets)		Assets and sales multipliers
Graham et al. (2002)	-9.6% to -13.7%	-5.7% to -6.6%	Assets and sales multipliers
Campa and Kedia (2002)	-9% to -13%	0% to +30%	Assets and sales multipliers
Villalonga (1999)	-0.08 to -0.24	+0.08 to +0.34	Tobin's q
Mansi and Reeb (2002)	-4.5%	0%	Assets and sales multipliers
Villalonga (2003)	-0.18	+0.28	Tobin's q

Strong-form discount

Does diversification destroy value? Or equivalently, are diversified firms worth less than what they would be had they been operated as stand-alone businesses? Because the counterfactual state of diversified firms cannot be observed, the value effect of diversification has often been inferred from the difference between the values of diversified and single-segment firms. However, this difference is only an unbiased estimate of the true value effect of diversification if firms diversify at random, as we would have in an experimental context. Hyland (1997) and earlier studies from strategy and economics confirm that the diversification decision is not random: firms that choose to diversify differ systematically from firms that choose not to diversify in multiple characteristics (Lemelin, 1982; MacDonald, 1985; Montgomery and Hariharan, 1991; Merino and Rodríguez, 1997; Silverman, 1999). Among these characteristics is the fact that diversified firms were already trading at a discount prior to diversifying (Lang and

Stulz, 1994; Hyland, 1997; Campa and Kedia, 2002; Villalonga, 1999). We thus have a sample selection problem of the kind that typically arise when evaluating treatment effects with non-experimental data.

Campa and Kedia (2002) and Villalonga (1999) use different statistical techniques that allow them to eliminate, or at least reduce, the selectivity bias. These include propensity score matching, instrumental variables, and Heckman's two-stage method. Both studies show that, when the selection bias is corrected for, the diversification discount disappears or even turns into a premium. Graham et al. (2002) show that half or more of the discount appears because the segments acquired by diversifying firms were also discounted prior to their acquisition. Chevalier (1999) also looks at diversifying mergers before and after the merger took place. She finds that the patterns of investment across segments of diversified firms that have often been interpreted as evidence of inefficient internal capital markets were already observed before the merger. Using plant-level data, Maksimovic and Phillips (2002) find that corporate growth and investment is related to fundamental industry factors and segment-level productivity, and that the majority of conglomerate firms exhibit growth that is consistent with optimal behavior. Consistently, Whited (2001) shows that the empirical findings of the inefficient internal capital markets literature are entirely attributable to measurement error in Tobin's q .

These studies suggest that, on average, diversification does not destroy value, or at least not as much as was originally thought. Some suggest that it may even create it. Still, not all researchers would agree with this conclusion. Lamont and Polk (2002) find that exogenous changes in diversity in capital expenditures and cash flow are negatively related to firm value. They conclude that diversification does destroy value. One possible way to reconcile both views is by looking at the correlation between diversity, as measured in Lamont and Polk's study, and diversification, as measured in the diversification discount literature. The correlation is close to zero. In fact, exogenous changes in diversity are negatively correlated with diversification, which helps explain the discrepancy. However, this raises a new set of interesting questions such as why diversity destroys value when diversification does not, which of two concepts is more relevant from the point of view of a financial economist, or what are good measures of both diversification and diversity.

Semistrong-form discount

Are diversified firms worth less than what they would be were they to be split into pieces? Event studies show that the stock market reacts positively to refocusing spin-offs and divestitures (Comment and Jarrell, 1995; John and Ofek, 1995; Daley et al., 1997; Berger and Ofek, 1999; Krishnawami and Subramaniam, 1999). However, and with the exception of Morck et al. (1985), event studies also show a positive market reaction to diversifying acquisitions (Schipper and Thompson, 1983; Matsusaka, 1993; Hyland, 1997; Hubbard and Palia, 1999; Chevalier, 1999).

The findings about the value effect of refocusing not based on event studies also mirror those of the diversification decision. Just like diversified firms prior to diversifying, refocusing firms trade at an average discount prior to refocusing (Liebeskind and Opler, 1995). Campa and Kedia (2002) find that there is a refocusing premium after controlling for endogeneity or sample selection bias.

Considered together with the findings about diversification, the findings about refocusing seem to indicate that, when firms are outperformed by their competitors, any change in their current strategy is welcome by the stock market. There is as much evidence that firms are destroying value by staying diversified as there is evidence that single-segment firms are destroying value by not diversifying. In other words, we can only interpret this as evidence of support for a semistrong diversification discount if we are also willing to accept the existence of a semistrong diversification premium.

Weak-form discount

Are diversified firms worth less than specialized firms in the same industries? Multiple studies indicate that this is the case in U.S. stock markets. Lang and Stulz (1994) find that the industry-adjusted Tobin's q of diversified firms over 1978–1990 is, on average, -0.27 to -0.54 lower than the q of single segment firms (which is approximately 1.5). Using sales and asset multiples instead of Tobin's q , Berger and Ofek (1995) find that diversified firms trade at a 13%–15% discount relative to single-segment firms during 1986–1991. Their findings have been replicated by many other studies, including all of those on the skeptical side of the debate.

One critique to these studies is that they are all based on Compustat's segment database, which presents a number of aggregation issues and is potentially subject to reporting biases. Villalonga (2003) uses a new Census database that covers the whole U.S. economy at the establishment level, and finds a diversification premium (on a sample that yields a discount according to segment data). Still, this does not invalidate the earlier results. First, the data only covers the period 1989-1996. Second, one possible explanation for this finding is that segment data measure purely unrelated (conglomerate) diversification, whereas establishment data also measure related diversification. Hence, the findings in Villalonga (2003) can be interpreted as evidence that there is a discount to conglomerate diversification, but a premium to related diversification. This would be consistent with the large strategy literature about diversification's effect on profitability that preceded the diversification discount research stream (e.g. Rumelt, 1974).

Other studies have challenged the existence of a weak-form diversification discount because of the standard method used to estimate excess values. For instance, Mansi and Reeb (2002) show that measures of firm value based on book values of debt systematically undervalue diversified firms. When considering the joint impact of diversification on debt and equity holders, they find that the diversification discount disappears.

What about other countries and time periods? Servaes (1996) finds a discount in the U.S. during the 1960s, but not during the 1970s. The international evidence is mixed: Lins and Servaes (1999) find a discount in the U.K. and Japan but not in Germany. Khanna and Palepu (2000) find a premium for diversified Indian business groups, but Lins and Servaes (2002) find a discount in seven emerging markets.

In short, whether there is a weak-form discount or not remains an open question.

Size of the discount

Also open is the question of the size of the discount. Lang and Stulz find a discount about twice as large as Berger and Ofek's. As reviewed above, other studies find a smaller discount, or no discount at all. The studies that find a premium reveal that the premium is sensitive to the sample, method, and econometric technique used. The implications are not trivial. For instance, Berger and Ofek's estimate of a 15% discount translates into a \$250 billion aggregate loss for their sample. If we applied the same percentage to all Compustat firms, the dollar amount would almost double. Unfortunately, if we as researchers cannot agree on the sign on the effect, trying to pin down an exact estimate of its size may perhaps be too ambitious.

Cross-sectional variance

Finally, it is important to note that all of the above discussion focuses on whether there is an *average* diversification discount or not. This is the question on which most of the debate about the diversification discount has hinged. Yet, as Stein (2003) argues, the mean value of the discount is not necessarily the most informative item. Much less attention has been paid to the variance in diversification discounts (or premia) across firms, however. Lang and Stulz find that, together with diversification, size and dividend paid are significantly related to industry-adjusted q . Berger and Ofek (1995) also find that excess values can partly be explained by size, as well as by relatedness, EBIT-to-sales and capex-to-sales ratios, overinvestment, cross-subsidization, and tax benefits from debt coinsurance. Denis et al. (1997) find no significant relationship between excess values and managerial or blockholder ownership. Rajan et al. (2000) find a negative relationship between diversity in investment opportunities (measured by q) and excess values. Lamont and Polk (2001) show that about half of the cross-sectional variance is due to variation in expected future cash flows, with the remainder due to variation in expected returns and to covariation between cash flows and returns. Still, there is plenty of room for further research on what firm characteristics make diversification optimal for some firms but not for others. The answers to this question may throw further light onto the relative explanatory power of the different theories of diversification. They may also be of greater use to managers and shareholders, for whom the relevant question is whether they should diversify, refocus, or do nothing, given the specifics of their firm.

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3. Comments by discussants

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Villalonga provides a useful summary and categorization of research in this area. With regard to the evidence on the “strong-form” and “semistrong-form” explanations for the discount, I think there is general agreement that self-selection considerations are important. Firm characteristics that lead firms to diversify (perhaps for optimal, value-maximizing reasons) might also cause them (or their targets) to be discounted prior to the diversification occurring. Nevertheless, I find the conclusions in the Villalonga review to be overstated.

The claim made with the respect to the strong-form explanation is that the “unanimous” conclusion of a group of studies exploring self-selection and measurement issues “is that, on average, diversification does not destroy value – and may even create it.” For several of the studies cited such a conclusion seems premature. Graham et al. (2002) find that about *half* of the discount is attributable to target segments being discounted prior to their acquisition. Does this mean that diversification does not destroy any value? In Campa and Kedia (2002), one wonders whether the instrumental variables estimation is useful because the instruments do not appear to be appropriate. They are using industry-level instrumental variables to learn about excess values, which are themselves industry-adjusted. Thus, the variation in the instrument is essentially orthogonal to the variation in the dependent variable. Villalonga (1999) uses propensity score matching to reduce selectivity bias and finds that the diversification discount disappears or becomes a premium. She finds, however, that proxies for agency motives are important determinants of the propensity to diversify. Does finding no diversification discount *after* controlling for the agency motive to diversify mean that diversification does not destroy value? Such a finding is consistent with the possibility that agency problems lead some firms to diversify when firm value would be greater if diversification did not occur.

Villalonga also claims the literature rejects the “semi-strong” form explanation that breaking up a diversified firm would, on average, create value. She does not cite Berger and Ofek’s *Journal of Finance* (1996) paper, which provides evidence contrary to her claim. This may not be important, because she agrees that there is considerable evidence that firms are destroying value by staying diversified. Her argument is simply that there is “as much” evidence that single-segment firms are destroying value by not diversifying. Of course, it is quite possible that firms are both too slow to diversify when they should do so and too slow to break apart. Moreover, while I certainly agree that we are using very blunt instruments to attempt to measure the magnitude of effects in this literature, it seems that the evidence to date does not point to as large a benefit from diversifying acquisitions as from refocusing events such as spin-offs.

With regard to the weak-form claim that diversified firms trade at a discount relative to single-segment firms in the same industries, it is difficult to argue that the weight of evidence is anything but supportive. Compustat’s segment database does present aggregation issues and is potentially subject to reporting biases, but these concerns have been reduced by the change in U.S. segment reporting rules in the late 1990s. In co-authored work with Rebecca Hann, we show that the new segment data reduce aggregation of dissimilar business activities, appear to

reduce reporting biases, and still result in diversification discounts very similar to those obtained (for the same firm-year) using the old segment data. Any disaggregation of the firm's overall activities is of course subject to potential concerns about allocations of shared, or overhead, costs. While the Census business establishment level data are more disaggregated than accounting segment data, it is very difficult to believe that cost allocation concerns are not more pervasive in the Census data.

The new segment data offer exciting opportunities for both research and teaching related to the diversification discount. The new segment reporting rule defines segments based on how management organizes divisions within the enterprise for making decisions and assessing performance. This *management approach* to the financial statement reporting of segments offers the best opportunity to date to understand line-of-business performance and resource allocations within diversified firms. I expect some of the unresolved issues about diversification strategies in general, and the diversification discount in particular, to be meaningfully addressed by exploiting this rich and relatively new data source.

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Villalonga's synthesis of recent research on the diversification discount is especially useful and interesting. Growth by diversification is one of the strategic staples for corporations, easily abused and misused. If, as George Stigler once argued, rational people don't do stupid things repeatedly, firms must be diversifying because there is something in it. One wants to understand the economic consequences of diversification. The evolution from one view to another evokes similar shifts in other areas of M&A, such as poison pills, and the perennial question of whether M&A destroys value for bidders. These past experiences summon several questions about the current diversification discount/premium debate:

- Is the premium (or discount) stable over time? Research on gains to bidders suggests it may not be: gains to bidders seem to vary over time with an unstable periodicity. A recent paper by Moeller, Schlingemann and Stulz (2003) finds losses to bidders in the late 1990s, less so earlier. Asquith, Bruner, and Mullins (1983) found sizable gains to bidders before 1969 and less so after. Perhaps diversification carries a premium in some periods and a discount in others. If so, it would be especially interesting to know why.
- Why does the premium (or discount) vary cross-sectionally? This is Villalonga's closing point. Some of the studies Villalonga cites find significant cross-sectional effects. If both the critics and partisans of diversification are right, quality of governance should be an important explanatory factor. It would be interesting to see regressions on variables that by now are common to the governance literature.
- With what (if anything) does diversification interact to produce a discount or premium? I'm less persuaded that diversification *alone* drives the premium or discount, but rather

diversification in the context of certain industry settings, certain economic conditions, and certain governance structures.

- If diversification pays, why is it so hard to sustain? Hubbard and Palia (1999) found positive announcement returns at the formation of conglomerates in the 1960s. Where today, for instance, are the conglomerate champions of yore, like Westinghouse, Gulf+Western, International Telephone and Telegraph, Ling-Temco-Vought, or Figgie International? A number of the champions were bought, broken up, and/or restructured because they underperformed. Just recently we were treated to the spectacular collapses of diversification strategies at Tyco International and Vivendi-Universal. *Is a conglomerate strategy difficult to sustain? If so, why?*
- Who are the exemplars, and what are (were) their characteristics? General Electric and its arch-rival, United Technologies, claim to have created value through diversification. And perhaps the best-performing stock investment of the last 40 years, Berkshire Hathaway, is a conglomerate run by the icon of shareholder wealth maximization, Warren Buffett. What might explain the performance of (any) exemplars?

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DAVID J. DENIS

Purdue University - Krannert School of Management

Over the past ten years, a considerable amount of effort has been exerted by academics towards studying the so-called "diversification discount." Much of this effort has been devoted to testing whether the discount really exists, or whether it is due to sample selection biases, endogeneity, or measurement problems. In terms of what we teach our MBA students, however, the emphasis on identifying the existence (or lack thereof) of a diversification discount is largely misplaced.

Regardless of one's interpretation of the existing evidence on the average discount, there are compelling theoretical arguments for how corporate diversification might increase value or decrease value. Moreover, the data indicate that there is considerable cross-sectional variation in the magnitude of the discount. No matter how the 'excess value' of diversified firms is measured, a substantial portion of diversified firms exhibit positive excess values and a substantial portion exhibit negative excess values. This implies that it is valuable to MBA students to understand those situations in which diversification is most likely to create value and those in which it may destroy value.

Finance classes are likely to focus on how the structure of the organization (i.e. whether it is diversified or not) affects real investment decisions and/or the cost of the firm's capital. Accordingly, discussions of corporate diversification in finance classes will naturally focus on the coinsurance and internal capital market effects of diversification. Students tend to strongly believe the coinsurance hypothesis that diversification creates value by lowering the cost of the firm's debt

Students are generally less aware of possible internal capital market effects. The diversified structure allows firms to effectively create an internal capital market whereby the cash flows of some of the firm's divisions can be used to subsidize investment in other divisions within the firm. Theoretical models show that this cross-subsidization can be efficient if it helps the firm overcome some of the costs of financial constraints, or can be inefficient if it results in the firm investing too much in its divisions with poor growth opportunities and too little in its divisions with good growth opportunities.

Attempts to test the internal capital markets hypotheses encounter the problem of measuring the growth opportunities of individual business units. Because no market-based measures such as Tobin's q exist for individual business units, the growth opportunities of these segments are generally approximated by those of comparable single-segment firms operating in the same industry. This approach is problematic if the divisions of diversified firms systematically differ from their single-segment counterparts. Recent evidence in Chevalier (1999) and Whited (2001) imply that the findings of studies of the inefficient internal capital markets hypothesis are materially affected by errors in the measurement of segment-level growth opportunities.

A more promising approach to testing the internal capital markets hypothesis is to examine changes in internal capital allocations following the breakup of a conglomerate. This approach is used in three recent studies by Ahn and Denis (2003), Dittmar and Shivdasani (2003), and Gertner, Powers, and Scharfstein (2002). The benefit of this approach is that it allows the researcher to examine changes in investment allocations across the same set of business units over time, thereby minimizing potential measurement problems. The evidence in these three studies supports the view that investment allocations are less efficient when the divisions are part of a conglomerate than when they are separated. Of course, this does not imply that investment is inefficient in all conglomerates. It simply says that for some firms, the breakup of a conglomerate creates value by improving capital allocations.

STEPHEN R. FOERSTER

University of Western Ontario – Richard Ivey School of Business

We can debate, as academics, not only the size of the diversification discount, but whether such a discount even exists. However it is important to balance our academic discussions by presenting students with examples of the actions of managers and the observations of analysts. In the minds of most analysts there is no debate about the second issue: the diversification discount does exist. A great "case study" of the semistrong-form discount is the 2001 spin-off of the large

conglomerate, Canadian Pacific (CP), which split into five separate companies. Prior to the February 13th announcement of the spin-off, a research report indicated the CEO's observation that "the stock price's implied discount to a sum of the parts valuation of CP Limited 'cried out for action'." Analyst reaction to the announced spin-off was that it would "narrow [CP's] inherent conglomerate discount valuation gap, hence creating valuation upside." From mid-January (in anticipation of the announcement) to mid-February, the stock increased 30%. The day after the announcement an analyst commented that "there is still 20% of a conglomerate discount." Are managers and analysts right about the discount? At a minimum, we can't ignore this "anecdotal" evidence.

ROBERT H. GERTNER

University of Chicago - Graduate School of Business

Belen Villalonga's comments do an excellent job of summarizing the state of empirical knowledge on the diversification discount. The diversification discount, like many controversial academic issues, has taken on a life of its own. And like many other controversial academic issues, the more we study it, the less clear it becomes. My reading of the existing evidence is that one cannot conclude that diversification, on average, leads to decreased financial performance.

At its most basic level the diversification discount is the positive statement that diversified firms' market values are lower than stand-alone firms. There are many possible explanations including selection, biases in reported data, market mispricing, and inferior performance. Independent of explanation, however, all statements about the diversification discount are statements about averages. But in many ways, it is the variation that matters most to our students who care about the normative implications of our research. As a teacher of strategy, not finance, I emphasize what might be called the first principle of strategy, namely that firms differ. Given this, even if one concludes that diversification is bad for firms on average, it does not follow that is bad for any particular firm. Independent of whether or not there is a diversification discount, there appear to be diversified firms that outperform focused firms. Understanding if and how these firms add value is a deep and difficult issue and important to our students.

This is why it strikes me as most important to understand the mechanisms which lead to divergent performance between diversified and focused firms. It is by delving more deeply into the resource allocation and other decision-making processes across these organizations that we will strengthen the ability of our students to make effective decisions about diversification. It is promising that there is a good deal of recent academic research addressing these issues.

STUART C. GILSON
Harvard Business School

What do I teach my students about the diversification discount?

I teach a course on corporate restructuring in the MBA program. I address the debate about the conglomerate stock discount in two cases studies. The first case, USX Corporation, deals with company's decision to create separate tracking stocks in its steel and oil & gas businesses. The case requires students to analyze whether, before the restructuring, USX's common stock trades at a discount relative to its hypothetical break-up value. The main reason management gives for creating a tracking stock structure is that analysts do not understand both businesses – their expertise is in either one or the other. As a result fewer analysts follow the firm, and those that do follow the firm produce poor analysis. Thus the case has students focus on one hypothesized cause of the conglomerate stock discount: information costs. The second case in this sequence offers a nice contrast to the first. It deals with Humana Inc., which is proposing to separate its hospitals business from its health insurance (HMO) business through an equity spin-off or some related transaction. The case is “rigged” to get students to conclude (wrongly) that the conglomerate stock discount is, like in the USX case, due to an information problem. In fact, the discount results from a flawed corporate strategy – keeping these two businesses together destroys value by deterring competing HMOs from sending their enrollees to Humana hospitals. In addition, the objectives of the two businesses are incompatible: Hospitals make money by admitting more patients; HMOs make money by sending hospitals fewer patients. The two cases expose students to the full menu of reasons why a conglomerate stock discount may exist, as well as to the set of financial restructuring options for eliminating the discount. I conclude the two classes with a slide show summary of academic research on the subject.

JOHN GRAHAM
Duke University - Fuqua School of Business

The standard ‘excess value’ calculation implies that the typical conglomerate is discounted by approximately 15%. If operating in multiple lines of business were so destructive, one would expect takeovers or other forms of corporate control to fix the problem, perhaps by busting up the firm. Or at least one would expect that the threat of corporate control would improve the performance of the firm. Therefore, absent large costs of corporate control, it is hard to imagine that so many conglomerates are priced a significant discount relative to what the sum of the divisions would be worth if they were operated as stand-alone firms.

My opinion is that it is beneficial for some companies to operate in multiple lines of business (e.g., when there are synergies or cost savings), while it is bad for others (e.g., when managers do not have the expertise to properly manage a division in a new industry). Therefore, it seems plausible that there are some conglomerates priced at a discount, and others priced at a premium, as implied by standard excess value calculations. My opinion, however, is that the distribution of excess values, as calculated by standard methodologies, is centered too far to the left.

Rather than being centered at approximately -15% like the standard calculations imply, my research (with Mike Lemmon and Jack Wolf) implies that the distribution of excess values should be centered near zero, or no further to the left than -7% or -8% . We reached this conclusion by studying two samples of firms. The first sample consisted of M&As for which we could determine the excess value of the bidder and target before the merger. We found that the target was significantly “discounted” *before* the acquisition. Therefore, the excess value of the combined firm was lower than the pre-acquisition excess value of the bidder. This occurred entirely because of the mathematical combination of the bidder and (discounted) target, and not because corporate diversification destroyed value. We found a similar result on a subsample of firms that increased their number of operating segments, though in this case, buying a discounted target explained only about half of the reduction in excess value for the bidder.

Note that even if our claim is true, and the excess value distribution is centered near zero, there are still wide tails on either side of zero, and there is still room for research to investigate this dispersion in excess values. If the market for corporate control is quick and efficient, and relatively low cost, perhaps the wide tails are caused by mismeasurement from using the standard excess value calculation. For example, perhaps single-segment firms are only a very noisy approximation of what the division of a conglomerate would be worth if it were spun off, or perhaps there are systematic differences between conglomerate divisions and single-segment firms. Or, perhaps there are real economic phenomena, like efficient or inefficient internal capital markets, that explain the wide dispersion of excess values among conglomerate firms in the U.S. and around the world.

LAURIE SIMON HODRICK

Columbia Business School

What I Teach My Students about the Diversification Discount: A Brief Summary

Students in my Advanced Corporate Finance course address the diversification discount during the segment on mergers and corporate control. My goal is to develop their understanding of both the theoretical and the practical issues surrounding diversifying mergers. First, we discuss the irrelevance of a diversifying merger to firm value under the Modigliani-Miller assumptions. We recall that if shareholders seek diversification of unsystematic risk, they can diversify within their own portfolio directly by buying other stocks, rather than diversifying at the firm level. Discussion then turns to how diversification is different from other motivations for mergers that create value by reducing costs or enhancing revenues. We introduce the idea that diversification provides cash flow coinsurance: the assets of the segments generate partially offsetting cash flows which make them less variable overall. This directly benefits the bondholders by reducing their risk. Shareholders may actually be made worse off by this coinsurance, however, because as holders of a call option on the firm's assets they are hurt when cash flow variance is reduced. The class then discusses the tax and informational consequences of these mergers.

Next, we discuss the wave of conglomerate mergers, in 1967-1969, when many companies in unrelated business lines joined together for diversification. We observe that many of the conglomerates created during this period were subsequently broken apart in the 1980s, and we consider the implications for value creation and destruction.

I then present empirical evidence regarding the diversification discount. Much of this evidence addresses the average discount, and many theories have been offered to explain this average. We discuss how measurement issues, such as difficulties in matching comparable firms, affect our interpretation of the evidence.

Finally, since the variation across firms and over time in the diversification discount (or premium) is under-examined but important, I present my students with the theoretical predictions that emerge from my model with Paolo Fulghieri.¹ We predict the magnitude of the diversification discount (or premium) for each merger by considering the nature of the merging firms' assets. We define asset specificity as the difference in value between an asset in its best use and in its next best alternative use. Asset specificity measures how firm-specific or specialized assets are. Our theory predicts a small number of diversifying mergers in industries characterized by limited asset specificity, and a diversification discount when these firms do choose to merge. We also predict that for diversifying mergers, post-merger performance should be increasing in the degree of asset specificity.

¹ See Fulghieri and Hodrick (2003), "Synergies and Internal Agency Conflicts: The Double-Edged Sword of Mergers."

STEVEN N. KAPLAN

University of Chicago - Graduate School of Business

Belen has done a nice job of summarizing the existing literature on the diversification discount. It seems clear that the "true" diversification discount is less than that found by Lang and Stulz (1994) and Berger and Ofek (1995), and may, in fact, be zero. In this short note, I want to make four observations.

First, I would add one additional piece of evidence that is not consistent with a diversification discount. In every study of which I am aware, the average combined returns to bidder and target shareholders at the announcements of diversifying acquisitions are zero or positive, and never negative.

Second, there is one cross-sectional result regarding the diversification discount that is worth mentioning. Berger and Ofek find that firms with higher diversification discounts are more likely to be taken over.¹ This indicates that whatever bias there is in the mean, the cross-section is meaningful.

Third, as Belen discusses, while much work has focused on measuring the diversification discount, relatively little attention has been given to measuring how and why diversification

affects shareholder value. I think this is a particularly interesting question that merits further study.

Finally, most of the work on diversification has been large sample work that uses large COMPUSTAT-type data sets. Future advances – particularly those that try to understand how diversification affects value – are likely to come from studies that use more detailed data, probably from a smaller sample of companies.

¹ Berger, P., and E. Ofek. 1996. “Bustup Takeovers of Value-Destroying Diversified Firms.” *Journal of Finance* 51, pp. 1175-1200.

LARRY H.P. LANG

Chinese University of Hong Kong

What do I teach my students about the diversification discount

Mr. Li Ka Shing in Hong Kong is ranked as one of the top 10 wealthiest entrepreneurs in the world. He owns 6 listed conglomerates with total asset more than 100 billion USD. One of his listed company Hutchison Whampoa covers seven sectors including telecommunication, infrastructure, finance, real estate, retailing, harbours and energy. The growth rate of EBIT of these 7 sectors ranges from -50% to +200%. However, the sales weighted average of the growth rate of EBIT of these 7 sectors combined only ranges from -5% to 20%. Because these 7 sectors are complementary to each other in their earnings, hence the reduction of volatility through complementarity creates stability but at the expense of diversification discount. Ironically, according to Mr. Li ----- “stability” is his key to success.

VOJISLAV MAKSIMOVIC

University of Maryland - Robert H. Smith School of Business

The diversification discount puzzle is important because it allows us to gauge how well our corporations deploy resources, and those decisions affect the living standards of each one of us. So, it is important that we get the solution right. So far, and with some notable exceptions, the profession’s approach has been mainly empirical, employing the usual tools of our trade, as befits a puzzle involving so many data questions. However, in this case, the usual approaches may not always give the right answer.

Take, for example, the interpretation of the discount. In my MBA corporate finance classes I follow the text in cautioning students against picking projects with a high profitability index (or Q) over projects with high NPVs. Thus, an expansion strategy that has a cost of 10, and a present value of future cash flows of 30 should not be picked over a strategy that costs 1000 and has a present value of future cash flows of 1,200. Yet, once we put our research caps on, we note that

the latter strategy has a lower Q and will sell at a discount to the former, and then start drawing critical conclusions about the managers who would pick such strategies for their firms. We need a better way of benchmarking performance that takes into account firm size.

In Maksimovic and Phillips (2002JOF) we have tried to provide and test such a benchmark equilibrium model of firm size and performance. The model shows how profit-maximizing diversified firms best exploit their organizational capital by selecting the scale of their operations in each industry and how they adjust this scale in response to industry shocks.

Using simple simulations we show that a discount relative to single-segment firms is consistent with profit maximizing. Using large samples and very detailed plant-level census data, we show that once we take productivity and equilibrium size into account most conglomerates allocate resources in ways consistent with value maximization. A related result comes out of Belen Villalonga's work. Depending on which data set she uses to define single-segment firms, and the mean size of "single-segment" the firms differs across datasets, she can generate premiums and discounts for conglomerates.

The profession is making progress on solving the puzzle. This process will accelerate when we combine the equilibrium approach with recent empirical work, for example on the relation of the discount to segment age and to pseudo-conglomerates.

JOHN D. MARTIN and AKIN SAYRAK

Baylor University - Hankamer School of Business, and University of Pittsburgh - Katz School of Business

What is a diversified firm?

Belen's comments about the diversification discount does a very nice job of synthesizing the current state of academic research so we'll focus our comments on what we feel is potentially a serious weakness in the various lines of inquiry undertaken by financial economists (including ourselves). Specifically, how do we identify the level of firm diversification? A US Supreme Court Justice once commented that although it may be difficult to define pornography, he could recognize it when he saw it.¹ In a sense we academics have exactly the opposite problem with respect to the identification of diversified firms. We can define a diversified firm very simply as one that engages in multiple unrelated business activities, but we may not be able to recognize such a firm from 30,000 feet where most of us choose to do our research.

The key to the identification of a diversified firm lies in an assessment of the relatedness of a firm's business units. Consider the case of Anheuser Busch who in 2001 reported the following

¹ The exact quote was "I shall not today attempt further to define the kinds of material I understand to be embraced within that shorthand description; and perhaps I could never succeed in intelligibly doing so. But I know it when I see it, and the motion picture involved in this case is not that." (Justice Stewart from *Jacobellis v. Ohio*. Citation 378 U.S. 184 Decided June 22, 1964.

revenue sources: Malt beverages (SIC 2082) 83%, Metal Cans (SIC 3411) 9%, Entertainment (Amusement Parks—SIC 7996) 7%, and Other (Subdivision development—SIC 6552) 1%. Using a simple count of SIC industry codes we get four different business groupings using one, two, three, or four digit codes. Since the typical large US firm is engaged in less than two four-digit SIC industries this would suggest that Anheuser Busch is a diversified firm even though it would appear that all the industry segments have a high degree of relatedness.² Furthermore, even more sophisticated measures of relatedness such as the Herfindahl Index (which takes account of the relative importance of the different industries in terms of assets or sales) or the Entropy measure (which can be used to focus on the number and relative importance of related versus unrelated industries—as reflected in two and four digit SIC codes) fail to capture the relatedness of Anheuser Busch’s business units (for a review of these metrics see Sayrak and Martin, 2002).

So what’s the answer? Two fundamental approaches have been taken in addressing this issue. The first involves the use of more labor intensive methods for identifying and studying diversified firms that reduce the level of inquiry down to the firm or ground level. There is a lengthy literature in the strategic management literature beginning with the seminal work of Rumelt (1974) that attempts to do just this. In addition, finance scholars have used clinical studies to come to grips with the difficulties involved in assessing business relatedness. However, these “ground level” studies are extremely labor intensive such that large scale studies await the development of more sophisticated measures of “relatedness” that can be applied to large samples. One such possibility involves the incorporation of the correlation structure of business revenue streams into the Herfindahl index (Sayrak and Martin, 2002). In essence, if you can’t get down to ground level to analyze corporate diversity, then you need a more powerful telescope with which to visualize the landscape!

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² Sayrak and Martin (2001) report that in 1993 for a sample of 7,864 publicly traded firms from the Compustat database the average number of 2-digit SIC industries per firm was 1.288 and the average number of 4-digit industries was 1.395.

JOHN G. MATSUSAKA

University of Southern California - Marshall School of Business

Estimates of the diversification discount generally show that multisegment firms trade at a discount compared to single segment firms in the same industries. A natural interpretation is that diversification causes the discount. Current research suggests the natural interpretation might not be right: it seems just as likely that firms with discounted assets choose to diversify, that is, the discount causes diversification. One lesson from all of this is the importance of distinguishing correlation from causality.

The difficulties with the diversification discount methodology also highlight the importance of considering alternative kinds of evidence when evaluating corporate policies. There is, in fact, a substantial amount of evidence that is not easy to reconcile with the view that diversification destroys significant shareholder wealth. Most large American corporations are diversified and the U.S. economy seems to perform as well as any other. Firm-level and plant-level studies of operational performance generally show behavior consistent with value maximization. And when a firm announces a diversifying acquisition, the combined value of the acquirer and target typically increases by about 2 percent (Akbulut and Matsusaka, 2003). Seen as a whole, the evidence seems to be telling us that diversification can be a value maximizing strategy for many firms, but not all. We know very little at this point about what makes for a successful diversification strategy.

Akbulut, Mehmet Engin and John G. Matsusaka, "50 Years of Diversification Discounts," working paper, Marshall School of Business, University of Southern California, 2003.

RANDALL MORCK

University of Alberta School of Business

Much of discussion of diversification focuses on cross-industry investment. However, many of the corporate governance issues that arise in industrially diversified firms should also arise in geographically diversified firms - multinationals. In both cases, division or subsidiary managers may confront environments distant from the head office, and may compete with each other for resources from the head office. Our work shows that geographic diversification, like cross-industry diversification, is associated with value reduction - but only if the multinational firm spends little on R&D. The value of R&D intense multinationals rises with the extent of geographic diversification. This may be because being able to use proprietary technology in new markets gives these firms enough of an edge over other firms to compensate for corporate governance problems associated with geographic diversification. This result is less strong in more recent years for reasons that are not fully understood. Perhaps currency fluctuations have grown larger and nullified the advantage of multinational investments, or perhaps governance problems in multinationals have grown worse, or perhaps falling trade barriers have made actual physical assets in many countries unnecessary.

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GORDON M. PHILLIPS

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The literature on conglomerate firms began as primarily an empirical one. Lang and Stulz (1994) and Berger and Ofek (1995) documented that conglomerate firms have lower stock market valuation than a constructed benchmark of single segment firms. The central implication made in these studies was that conglomerate firms destroy value and do a poor job of investing across business segments.

Recent literature has questioned this claim on two central dimensions:

- (1.) Conglomerate firms are fundamentally different and have a lower valuation in the stock market because they have assets that are worth less – even if they were focused stand-alone firms. Thus no destruction of value need have occurred. Evidence consistent with this proposition has been provided by Campa and Kedia (2002), Graham, Lemmon and Wolf (2002), Villalonga (2003). The theoretical model and evidence in Maksimovic and Phillips (2002) is also consistent with this claim.

Theoretically, Maksimovic and Phillips (2002) show the conglomerate form may be a profit-maximizing choice once differential firm skill in different segments is taken into account. Figure 1 from our paper shows that even restructuring can be consistent with a profit-maximizing neoclassical model where conglomerate firms form and are broken up after they experience demand and productivity shocks. Evidence on mergers & acquisitions consistent with this view is provided in Maksimovic and Phillips (2001).

- (2.) Conglomerate firms should allocate resources differently given that they have different investment opportunities. Given differential opportunities, evidence in Maksimovic and Phillips (2002) shows that they actually invest and grow consistent with profit maximization. The evidence shows that conglomerate firms allocate more resources (investment, growth in employees) to their more productive segments when those segments experience positive demand shocks. Consistent with investment being allocated efficiently, Whited (2001) shows that the earlier results attributed to inefficient investment by conglomerate firms disappear when measurement error is corrected.

Why do we see such striking new results? The central assumption of the earlier empirical work is that firms are homogeneous and they all face similar opportunities – except for higher agency problems in conglomerate firms that cause problems in allocating resources. Thus the empirical prescription that comes out of earlier studies is that if conglomerate firms were merely busted up value would be created. However, firms do differ in their opportunities and their ability to

exploit market opportunities. Peters and Waterman (1982), Schmalensee (1985), and many other authors, have noted that firms differ even within the same markets.

Given these potential differences, we need to examine whether firms have different “abilities” and if they face different opportunities. We need a model for why some firms might choose the conglomerate form of organization and also how should they invest across their business segments given differential opportunities. The model in Maksimovic and Phillips (2002) provides such a model. Bernardo and Chowdry provide another model where conglomerate firms may have different growth options. Indeed, Bevelander (2003) finds evidence consistent with different growth options by conglomerate and single-segment firms. To test their model, Maksimovic and Phillips (2002) use detailed data that allows for a measurement of individual segment productivity. Given productivity and subsequent demand shocks, we examine how conglomerate firms grow and invest across their business segments – conditional on own segment productivity – not based on a proxy for these opportunities from single segments. Thus the new models and evidence can explain previous results and also allow for better measurement of the heterogeneous opportunities firms face.

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HENRI SERVAES

London Business School

What do you tell your students about the diversification discount

A large fraction of the students I encounter have actually heard about the diversification discount before they come to the program. Many of them have worked for diversified firms and have seen how investment decisions get distorted for a variety of reasons – either to please certain individuals or because the firm employs a single cost of capital for all its divisions. Others have worked in investment banks as analysts and it is very common for analysts to explicitly discount their valuations of diversified firms by about 15%. Those students generally know about the discount, but are not sure why it exists. When pushed, they will argue it is a reflection of market inefficiencies.

Thus, most students are not surprised by the large sample evidence that diversified firms trade at a discount relative to a portfolio of focused companies. Similarly, many have seen the link between the quality of investments and valuation.

When these students are then confronted with the more recent evidence, which suggests that the discount ‘disappears’ when we take into account that firms with low valuations and productivity decide to diversify [Campa and Kedia (2002), Villalonga (1999), and Maksimovic and Philips (2002)] and that they buy other discounted firms [Graham, Lemmon and Wolf (2002)], they are actually surprised. A more careful examination of that evidence is therefore warranted.

It is important to realize that diversification can destroy value along two dimensions. First, a firm can destroy value by overpaying for an acquisition. Holding the value of the target constant, the acquirer simply pays too much. This value destruction is permanent – and it will show up as discount (using Villalonga’s terminology, it will show up as a strong form discount). Second, a firm can destroy value by making the wrong investment decisions when it is diversified. If the discount reflects the expectation that such destruction will continue, then value can be increased if the investment policies are changed.

What does the evidence tell us? First, firms experience negative stock price returns when they make diversifying acquisitions. This is the case for the 1980s and 1990s [Morck, Shleifer, and Vishny (1990) and Chevalier (2000)]. While it may have been optimal for these firms to diversify, it was probably not optimal to overpay. Of course, we can still argue that the act of diversification “signaled” to the market that these firms were doing worse than anticipated by the market, while the actual act of diversification was not bad, but I think that is pushing things a bit. We also know that the most discounted firms make the worst acquisitions [Lang, Stulz and Walkling (1989)]. This suggests that the act of diversifying alone destroys value, on average. Of course, the value loss is not nearly as large as the discount because it is true that poor firms diversify and that they buy discounted firms. But there certainly is a loss in value.

Second, diversified firms have investment policies that are different from single-segment firms. Lamont (1997), Shin and Stulz (1998), Scharfstein (1998) and Rajan, Servaes, and Zingales (2000) document this in detail. This does not necessarily mean that the investment policies destroy value since the investment opportunities of segments of diversified firms may not be the

same as those of focused firms in the same industry. But, in Rajan, Servaes, and Zingales, we are able to relate investment efficiency to valuation measures, which strengthens the support for the link between the discount and misallocation of funds. It is then interesting to note that when these firms decide to increase focus, their investment policies become more efficient and revert back to those of focused firms [see Gertner, Powers, and Scharfstein (2002), Burch and Nanda (2003), Dittmar and Shvidasani (2003), and Ahn and Denis (2003)]. This also leads to an increase in value. Some may argue that the latter evidence is not surprising – these firms become focused because they evolve and started looking more like focused firms: it is a voluntary decision [see Maksimovic and Philips (2002)]. But is it? Or are these firms actually feeling the pressure from the market for corporate control? Berger and Ofek examine this in their 1996 paper. They find that more discounted diversified firms are more likely to be acquired, and broken up, at higher prices. This clearly suggests that these firms were destroying value by remaining focused. Similarly, in their 1999 paper, they found that firms generally refuse to refocus unless major disciplinary or incentive-altering events occur.

Another issue is whether we observe a discount because the Compustat database does not contain enough information or because the evidence suffers from self-reporting biases. Villalonga (2003) sheds some light on this issue, but because she cannot distinguish between related and unrelated diversification, we cannot draw definite conclusions from her evidence. It is clear, however, that the discount is still present when we examine Compustat data under the new FASB reporting rules, which require firms to report segments that correspond to their organizational structure [see Sanzhar (2003)].

Finally, instead of focusing on the average discount, it is more important to understand what the characteristics are of firms that successfully operate a diversified structure and those that do not. The evidence indicates that firms with more diversity in the divisional contributions to corporate profits are valued at a discount [Rajan, Servaes, and Zingales (2000) and Lamont and Polk (2002)].

Overall, I think there is certainly not enough evidence at this point to refute most of our students' priors that diversification does indeed destroy value.

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