THE PENNSYLVANIA STATE UNIVERSITY

SCHREYER HONORS COLLEGE

DEPARTMENT OF ACCOUNTING

GOODWILL IMPACT ON EQUITY VALUES

MEIXI CHEN

Spring 2012

A thesis

submitted in partial fulfillment

of the requirements

for a baccalaureate degree in Hotel, Restaurant and Institutional Management

with honors in Accounting

Reviewed and approved* by the following:

JOHN EDWARD KETZ

Associate Professor of Accounting

Thesis Supervisor

ORIE EDWIN BARRON

Professor of Accounting

Honors Advisor

Abstract

David E. Vance did research on "Return on Goodwill." He found that return on assets for companies with goodwill was higher than that for companies without goodwill, thereby demonstrating that goodwill contributes to corporate profitability. Further, Vance studied the return on assets by industry and generally found the same results; exceptions were not systemic.

I replicate and extend Vance's work. First, his results may be contaminated because the data included in his study are from both pre-FASB 141 and post-FASB 141 years. The FASB issued Statement No. 141 in June 2001 and became effective for firms in December 2001. Vance's data are drawn from 1995 to 2004. By choosing firms from the period 2001-2010, I can avoid this possible contamination.

Second, I extend Vance's study by looking at cash flow from operating activities (CFO) in addition to earnings before income taxes (EBIT). I scale these variables not only by total assets (TA) but also by shareholder's equity (SHE). Vance examined only EBIT/TA. I research EBIT/TA, CFO/TA, EBIT/SHE, and CFO/SHE. These extensions attempt to assess whether Vance's results are sensitive to his one specification.

The major empirical findings are:

(a) As Vance found in his study for all industries and for all 10 years, except for minor random differences, return on assets is significantly greater for companies with goodwill than those without goodwill. This is also true for CFO/total assets.

(b) For manufactruing and service companies, return on equity is also siginifically greater for companies with goodwill than those without goodwill. This is also true for CFO/shareholder's equity. But transportation, retail, and financial service companies

generally do not exhibit any statistically significant difference in any industry for companies with goodwill and companies without goodwill.

The major conclusion from the empirical analysis is that: All companies with goodwill have higher returns on assets than the companies without goodwill. Companies with goodwill in manufacturing and services industries generate greater returns on shareholder's equity than those without goodwill. So those companies with goodwill have enough residual profit to pay shareholders an incremental return after they pay off the incremental interest to creditors. Companies with goodwill in transportations, retails and financial services are financing the mergers and acquisitions with debt, so they are generating extra returns on assets to cover incremental interest fully or partially. Once they pay interest, however, companies with goodwill in these industries do not have enough residual profit to pay shareholders significantly higher returns relative to the companies without goodwill.

Table of Contents

1. Introduction

Goodwill is a residual value (Hamlen, Huefner, and Largay, 2010, pp.38-41). It is the difference between the purchase price of a company and the fair value of its net assets. This difference is booked as an asset under authority of Financial Accounting Standards Board (FASB) Statement of Accounting Standards (SFAS) No. 141 and No. 142. The argument for goodwill is that acquirers pay the fair market value of firms and the difference between the purchase price and the fair market value of acquired net assets represents a premium for the skills of management and other value not captured by other identifiable resources.

David E. Vance (Rutgers University School of Business Camden) published his paper "Return On Goodwill" in the *Journal of Applied Business Research* in March 2010. He compared two groups of companies: those with goodwill and those without goodwill, as well as companies with high goodwill and no goodwill. In his conclusion, companies with booked goodwill and with high goodwill performed at least as well as, and frequently better than, companies without goodwill. Vance measured performance as return on assets; specifically, earnings before interest and taxes divided by total assets. He concludes that goodwill is a rent-generating asset.

In Vance's research, there exists a possible contamination. SFAS No.141 and 142 came out in June 2001, replacing the old rule—APB Opinion 16. On the FASB website, it stated: "The provisions of this statement reflect a fundamentally different approach to accounting for business combinations than was taken in Opinion 16," (SFAS 141). The single-method approach used in this statement reflects the conclusion that virtually all business combinations are acquisitions and thus, all business combinations should be accounted for in the same way that other asset acquisitions are accounted for—the values exchanged. The new rule changes the accounting for

1

business combinations in Opinion 16 in several significant respects: the FASB eliminated pooling of interests and it required the expensing of merger costs.

These differences between APB Opinion 16 and SFAS 141 and SFAS 142 might limit Vance's conclusions. He sampled firms from the ten year period of 1995 to 2004, but FASB No. 141 and No. 142 was published in 2001; therefore, the different accounting methods that companies used before 2001 and after 2001 may have materially impacted the results. By choosing firms from the time period 2001-2010, I will avoid this possible problem.

I first replicate Vance's work for the time period 2001-2010. I employ return on assets defined in the same manner as Vance. I employ a t-test for the equality of mean return on assets for the two groups, companies with and without goodwill.

I extend Vance's work by using cash flow from operating activities (CFO) in addition to earnings before income taxes (EBIT). To the extent that EBIT is correlated with CFO, the results should be similar for the two metrics. To the extent that accruals and deferrals drive apart EBIT and CFO, the results will differ.

Finally, I extended Vance's work by scaling EBIT and CFO by shareholder's equity (SHE) as well as total assets (TA). Dividing the asset flow measures by TA yields a return to the firm, which is a yield to all providers of capital. Dividing the two asset flow measures by SHE produces a return to the shareholders, which might differ from the return to the firm.

The contributions of this study are to demonstrate whether the impact of goodwill on company performance is measurable and to analyze variability of that impact industry by industry.

Section 2 of this thesis presents the literature review. Section 3 discusses the research question. Section 4 describes the data and methodology applied. Section 5 presents the empirical analysis and tables. Section 6 summarizes the results and conclusions.

2. Literature Review

Goodwill has been a hotly debated topic in accounting for many decades. Some argue that goodwill is simply a plug figure that has no real value (Lander and Reinstein, 2003; Massoud and Raiborn, 2003) and that goodwill should be written off immediately (Catlett and Olson, 1968). Some suggest that goodwill represents an overpayment (Johnson and Petrone, 1998),. Some claim that goodwill does not fit the definition of an asset, which is an account that represents resources that generate future revenue (Samuelson, 1996; Schuetze, 1993).

As goodwill is that part of the purchase price that is left after all the tangible and identified intangible assets have been fair-valued, a high proportion of goodwill left implies that there is a risk that there has been a failure to identify and fully value intangible assets. An alternative possibility is that the price paid was too high, in which case the overpayment is allocated to goodwill. It can take several years to identify overpayments and management is usually reluctant to acknowledge that mistakes have been made. History is littered with examples of poor acquisitions such as that of AOL by Time-Warner and, in Europe, Mannesmann by Vodafone (SFAS 141: The first 5 years).

One significant controversial issue is that SFAS 141 does not require any description of the factors which justify the amount paid for goodwill. Some strongly believe that it is in the interests of shareholders that this information should be provided and that SFAS 141 should be better drafted in this respect (SFAS 141: the first 5 years).

In Vance's research, he empirically researched thirty-eight industries to assess whether goodwill is a rent generating asset. Through two groups of tests on metrics: companies with goodwill vs. companies with no goodwill and companies with high goodwill vs. companies with no goodwill. The companies with booked goodwill and with high goodwill performed as well as, or better than, companies without booked goodwill. Vance concludes that these results refute the theory that goodwill is simply a plug number.

These discussions center on the question whether goodwill can contribute to future revenue or profit generating in a measurable way. If goodwill can contribute to future revenue or profit generation in a measurable way, then one may conclude that goodwill is an asset. If it cannot generate future benefits, goodwill is not an asset.

3. Research Question

Goodwill is a residual value, which makes it very difficult to measure its ability to generate future revenue. If goodwill can generate future revenue, then companies with booked goodwill should perform comparably to companies without booked goodwill. How to measure the company performance is the problem that this study will examine. Return on assets (ROA), return on equity (ROE), cash flow from operations over total assets (CFA), cash flow from operations over equity (CFE) are four good measures of the overall profitability of a company. The ROA ratio shows a company's ability to generate profit per dollar of assets. The ROE ratio shows the company's profitability per dollar of stockholder investment. Cash flows from operations over either total assets or shareholders' equity indicate the company's ability to generate cash per dollar of assets or per dollar of shareholders' investment.

The research question in this thesis is: Do the companies with booked goodwill percentage have a higher return than the companies with no booked goodwill? I distinguish between the two

groups by using the percentage of goodwill, which is measured by goodwill/total assets, using 0.01 as my threshold. Goodwill firms goodwill have at least one percent of their total assets in goodwill; non-goodwill firms have less than one percent of their total assets in goodwill.

4. Data and Methodology

4.1. Firms employed

Return on assets was analyzed for the ten year period 2001 to 2010. Firms on the Compustat North American database that had the necessary data were employed in this study. To avoid meaningless results for return on equity and potential problems with shareholders' equity close to zero, I eliminated firms with stockholders' equity less than $1 million. To be consistent with Vance's study, I also eliminated firms with total assets less than $20 million. This also will reduce the number of outliers in the remaining data set. I also restrict firms to those whose fiscal year ends on December 31.

Firms with incomplete information during a particular year were eliminated from the sample for that year. A company eliminated in one year may still be included in the set of firms for another year if it meets the data requirements for that year. Companies thus may be employed for some or all of the years in this study.

This study will group the firms into industries as there may be industry effects when comparing the goodwill firms with the non-goodwill companies. A common way of implementing this is via the Standard Industry Classification (SIC) system, as developed by the federal government. (In addition to the Vance study, Fama and French (1997) illustrates the utilization of the SIC codes in the design of their empirical study.) This classification system assigns a four digit standard industrial codes to a variety of industries. As explained in Wikipedia ("Standard Industrial Classification"):

"The SIC codes can be grouped into progressively broader industry classifications: industry group, major group and division. The first 3 digits of the SIC code indicate the industry group, and the first 2 digits indicate the major group. Each division encompasses a range of SIC codes: for instance, the division of manufacturing holds all SIC codes with the first two digits between 20 and 39. To look at a particular example of the hierarchy, SIC code 2024 (ice cream and frozen desserts) belongs to industry group 202 (dairy products), which is part of major group 20 (food and kindred products), which belongs to the division of manufacturing."

This study puts firms into eight broad industry groups based on the first digit of the SIC code. The industry groups are: mining and construction, manufacturing (food, textile, lumber, chemical), manufacturing (rubber, metal, machinery, electrical), transportation, wholesale and retail trade, financial industries, services (hotels, automobile, amusement) and services (health, legal, education). I omit the broad group with the first digit 0 or 9 because there were few firms in these two sectors.

The SIC code and industry type are listed in Table 1 as shown below.

Table 1: SIC Code and Industry Type

SIC Code	Industry Type
1,000 – 1,999	Mining and Construction
2,000 – 2,999	Manufacturing (food, textile, lumber, chemical)
3,000 – 3,999	Manufacturing (rubber, metal, machinery, electrical)
4,000 – 4,999	Transportation
5,000 – 5,999	Wholesale and Retail Trade
6,000 – 6,999	Financial Industries
7,000 – 7,999	Services (hotels, automobile, amusement)
8,000 – 8,999	Services (health, legal, education)

4.2. Ratios employed

This study focuses on the performance of goodwill versus non-goodwill firms. I obtain goodwill and total assets for each entity. For each firm-year in the sample I compute the goodwill as a percentage of total assets. Goodwill firms goodwill have at least one percent of their total assets in goodwill, and non-goodwill firms have less than one percent of their total assets in goodwill.

The variables of interest are EBIT/TA, EBIT/SHE, CFO/TA, and CFO/SHE. Thus, I need to obtain EBIT, CFO, TA, and SHE for each firm-year to compute these four ratios.

Specifically, in a given year and a given industry, for each firm meeting the data requirements of stockholders' equity at least $1 million and total assets at least $20 million, I extracted Goodwill, EBIT, CFO, TA, and SHE from the Compustat database. Goodwill is Data Item 328 on the Compustat file; total assets is Data Item 90; EBIT or operating income after depreciation is Data Item 570; shareholders' equity is Data Item 734; and cash from operating activities is Data Item 557.

4.3. Null and alternative hypotheses

The general purpose of this study is to examine the profitability of goodwill and non-goodwill firms. The profitability metrics are operating income to assets, cash flow to assets, operating income to equity, and cash flow to equity. Operating income is operationalized as earnings before and interest, similar to what Vance did.

I first replicate Vance's study by exploring the return on assets for the goodwill firms and for the non-goodwill firms. I then examine three variations to this metric, as discussed above. The four hypotheses, in null form, is:

H1: ROA_{NGW} = ROA_{GW}

H2: ROE_{NGW} = ROE_{GW}

H3: CFA_{NGW} = CFA_{GW}

H4: CFE_{NGW} = CFE_{GW}

where ROA denotes return on assets, ROE is return on equity, CFA stands for cash flow/total assets, and CFE denotes cash flow to equity. GW signifies the goodwill firms, and NGW indicates the non-goodwill firms. ROA_{GW} stands for the mean ROA for the goodwill group of firms, while ROA_{NGW} denotes the mean ROA for the non-goodwill group, and similarly for the other constructs.

If goodwill is truly an asset, then it should generate economic rents as Vance described. If this is so, then one might expect goodwill firms to produce higher return metrics than the non-goodwill companies. This suggests that the hypotheses will be tested against one-tailed alternatives. Thus, the corresponding alternative hypotheses are:

H1A: ROA_{NGW} < ROA_{GW}

H2A: ROE_{NGW} < ROE_{GW}

H3A: CFA_{NGW} < CFA_{GW}

H4A: CFE_{NGW} < CFE_{GW}

The "<" sign in each hypothesis indicates that this is a one-tailed test. In particular, if a difference exists, the mean return metric should be higher for the goodwill firms.

A Type 1 error is the error of rejecting the null hypothesis when the null hypothesis is true. Some studies set a probability value or p-value for this Type 1 error, which is also called alpha.

If the p-value is .05, that is, if alpha equals .05, then the probability of committing a Type 1 error is 5 percent. Given a particular alpha, one obtains a relevant threshold and compares some statistic with this threshold and decides whether or not to reject the null hypothesis.

A variation is to compute the relevant statistic and report the probability of a Type 1. This is what I do in Tables 2-11. For example, if the p-value is 0.04, one would interpret this as a 4% chance of observing a difference in means as large as observed even if the two population means (goodwill and non-goodwill firms) are identical. In other words, repeated experiments from the same populations would lead to a difference smaller than one observed 96% of the time but larger than the difference observed in 4% of experiments.

4.4 Statistical method

I test the hypotheses with the the test for equality of means assuming equal variances (Mason, Lind and Marchal 1999, pp.320-323). The test statistic is:

$$T = \frac{\bar{Y}_1 - \bar{Y}_2}{s_p\sqrt{1/N_1 + 1/N_2}}$$

where Y_1 and Y_2 are the sample means and N_1 and N_2 are the number of firms in each group. And

$$s_p^2 = \frac{(N_1 - 1)s_1^2 + (N_2 - 1)s_2^2}{N_1 + N_2 - 2}$$

where s_p is the pooled standard deviation assuming equal variances and s_1 and s_2 are the sample standard deviations.

I used Excel to compute the test statistics. The data analysis function in Excel generated the p-value of each 10 year data set. Excel outputs the sample means, the sample variances, the number of firms in each group, the t-statistic, and the p-value.

5. Empirical Analysis

From the t-test for two samples assuming equal variances on ROA, ROE, CFA and CFE, I found that ROA and CFA generally are significant, but ROE CFE are significant for some industries but not for others. For most of the years, p-value of the return on total assets appears statistically significant. Most of the p-values were less than the 0.05 threshold. If the 0.10 threshold is chosen, then all 10 years appear to be significant for all industries in general. Therefore, I can reject the null hypotheses of H1: $ROA_{NGWi} = ROA_{GWi}$ and H3: $CFA_{NGWi} = CFA_{GWi}$, and accept the alternate hypotheses of H1A: $ROA_{NGWi} < ROA_{GWi}$ and H3A: $CFA_{NGWi} < CFA_{GWi}$. I may conclude that companies with booked goodwill have higher operating income return on assets and higher cash flow from operating activities return on assets than the companies with no booked goodwill.

For most of the years, p-value of the return on shareholders' equity appears to be not statistically significant. Most of the p-values were greater than the 0.05 threshold. Therefore, the null hypotheses of H2: $ROE_{NGWi} = ROE_{GWi}$, H4: $CFE_{NGWi} = CFE_{GWi}$ cannot rejected. I may conclude that companies with booked goodwill do not have higher return on shareholder's equity than the companies without booked goodwill. This is true for all 10 years. However, there is an industry effect. Manufacturing and service firms frequently display a statistically significant difference between these returns, the mining and construction industry has a difference half the time but no difference for the other five years, while retail, transportation, and financial service firms generally do not have a difference between the means of the goodwill and non-goodwill companies.

On each of the tables shown below, n-no GW column represents number of companies which have goodwill percentage (goodwill/total assets) less than 0.01; n-GW column represents number of companies which have goodwill percentage greater than or equal to 0.01. There are four big categories of testing, EBIT/TA, EBIT/SHE, CFO/TA and CFO/SHE. Within each category, I tested the mean return of the companies with no goodwill versus the mean return of the companies with goodwill. Within the table, I display these means and the p-value (one-tailed test). This test is done for all companies, which met the selection criterias, reported on Compustat from 2001 to 2010 with the fiscal year ended on December 31.

Table 2: 2001 Performance Analysis

Industry	n-no GW	n-GW	EBIT/TA			EBIT/SHE			CFO/TA			CFO/SHE		
			mean-no GW	mean-with GW	P-value	mean -no GW	mean -with GW	P-value	mean -no GW	mean -with GW	P-value	mean -no GW	mean -with GW	P-value
1000-1999	243	68	0.03	0.08	0.02	0.05	0.51	0.00	0.13	0.10	0.01	0.30	0.05	0.00
2000-2999	696	183	(0.48)	0.02	0.00	0.47	0.12	0.35	(0.23)	0.04	0.00	(0.50)	0.19	0.14
3000-3999	499	439	(0.07)	0.02	0.00	(0.12)	0.13	0.00	(0.01)	0.06	0.00	0.00	0.24	0.00
4000-4999	632	201	(0.29)	(0.03)	0.05	0.41	0.30	0.83	(0.15)	0.03	0.07	0.28	0.39	0.13
5000-5999	219	171	(0.72)	0.03	0.00	(0.60)	0.00	0.08	(0.22)	0.06	0.02	(0.51)	0.17	0.06
6000-6999	600	177	(0.08)	0.02	0.03	0.18	0.12	0.79	(0.04)	0.04	0.02	0.07	0.13	0.20
7000-7999	371	246	(0.19)	(0.11)	0.00	(0.30)	(0.18)	0.04	(0.05)	0.00	0.00	(0.02)	0.09	0.03
8000-8999	83	82	(0.05)	0.05	0.00	(0.05)	0.23	0.00	0.02	0.07	0.03	0.13	0.21	0.09

Table 3: 2002 Performance Analysis

Industry	n-no GW	n-GW	EBIT/TA			EBIT/SHE			CFO/TA			CFO/SHE		
			mean-no GW	mean - with GW	P-value	mean - no GW	mean - with GW	P-value	mean - no GW	mean - with GW	P-value	mean - no GW	mean - with GW	P-value
1000-1999	337	85	(0.52)	0.04	0.05	(0.15)	0.03	0.13	(0.29)	0.03	0.08	0.04	0.18	0.11
2000-2999	277	325	(0.16)	0.05	0.00	(0.15)	0.25	0.00	(0.11)	0.06	0.00	(0.07)	0.27	0.00
3000-3999	347	536	(0.09)	0.03	0.00	(0.14)	0.13	0.00	(0.02)	0.07	0.00	0.02	0.22	0.00
4000-4999	556	257	(0.29)	0.01	0.02	0.17	0.08	0.89	(0.08)	0.06	0.04	0.25	0.09	0.97
5000-5999	175	188	(0.84)	0.06	0.04	0.10	(0.07)	0.82	(0.22)	0.07	0.04	(0.39)	(0.16)	0.19
6000-6999	580	197	(0.19)	0.06	0.00	0.28	0.20	0.82	(0.07)	0.07	0.00	(0.05)	0.23	0.07
7000-7999	215	336	0.00	0.05	0.00	(0.10)	0.06	0.02	0.00	0.03	0.02	0.05	0.16	0.03
8000-8999	49	115	(0.13)	0.07	0.00	(0.32)	0.21	0.00	(0.04)	0.08	0.00	(0.13)	0.22	0.00

Table 4: 2003 Performance Analysis

Industry	n-no GW	n-GW	EBIT/TA			EBIT/SHE			CFO/TA			CFO/SHE		
			mean-no GW	mean - with GW	P-value	mean - no GW	mean - with GW	P-value	mean - no GW	mean - with GW	P-value	mean - no GW	mean - with GW	P-value
1000-1999	353	100	(0.54)	0.05	0.08	0.05	0.11	0.21	(0.01)	0.09	0.01	0.09	0.22	0.15
2000-2999	295	332	(0.15)	0.06	0.00	(0.22)	0.26	0.00	(0.11)	0.07	0.00	(0.14)	0.26	0.00
3000-3999	320	560	(0.06)	0.04	0.00	(0.15)	0.15	0.00	(0.02)	0.06	0.00	(0.05)	0.19	0.00
4000-4999	443	217	0.06	0.06	0.77	0.19	0.25	0.03	0.08	0.10	0.01	0.27	0.41	0.00
5000-5999	99	158	0.06	0.07	0.12	0.19	0.27	0.07	0.09	0.08	0.86	0.24	0.29	0.12
6000-6999	582	203	(0.30)	0.07	0.06	0.24	0.26	0.24	(0.02)	0.08	0.08	0.06	0.31	0.11
7000-7999	153	345	0.00	0.02	0.08	0.00	0.13	0.07	0.04	0.06	0.09	0.12	0.21	0.06
8000-8999	41	120	(0.10)	0.07	0.00	(0.09)	0.16	0.00	(0.01)	0.07	0.00	0.08	0.18	0.05

Table 5: 2004 Performance Analysis

Industry	n-no GW	n-GW	EBIT/TA			EBIT/SHE			CFO/TA			CFO/SHE		
			mean-no GW	mean - with GW	P-value	mean - no GW	mean - with GW	P-value	mean - no GW	mean - with GW	P-value	mean - no GW	mean - with GW	P-value
1000-1999	331	118	(0.68)	0.06	0.03	0.46	0.14	0.83	(0.30)	0.09	0.07	(0.22)	0.24	0.12
2000-2999	399	356	(0.29)	0.04	0.00	(0.48)	0.16	0.00	(0.22)	0.05	0.00	(0.36)	0.16	0.00
3000-3999	309	580	(0.02)	0.06	0.00	0.01	0.16	0.00	0.00	0.05	0.00	0.02	0.13	0.00
4000-4999	509	253	(0.57)	0.05	0.06	0.05	0.39	0.03	(0.14)	0.08	0.05	0.68	0.43	0.82
5000-5999	107	168	0.06	0.08	0.05	0.17	0.26	0.01	0.06	0.07	0.14	0.15	0.20	0.12
6000-6999	1044	409	(0.21)	0.04	0.07	0.32	0.25	0.85	(0.07)	0.04	0.05	0.33	0.16	0.85
7000-7999	186	432	(0.12)	0.00	0.00	(0.23)	0.08	0.00	(0.06)	0.05	0.00	(0.11)	0.12	0.00
8000-8999	50	133	(0.11)	0.06	0.00	(0.15)	0.16	0.00	(0.03)	0.06	0.00	(0.04)	0.17	0.00

15

Table 6: 2005 Performance Analysis

Industry	n-no GW	n-GW	EBIT/TA			EBIT/SHE			CFO/TA			CFO/SHE		
			mean-no GW	mean-with GW	P-value	mean-no GW	mean-with GW	P-value	mean-no GW	mean-with GW	P-value	mean-no GW	mean-with GW	P-value
1000-1999	281	123	(0.04)	0.08	0.00	0.05	0.19	0.03	0.03	0.11	0.00	0.15	0.25	0.04
2000-2999	383	351	(0.28)	0.04	0.00	(0.43)	0.18	0.00	(0.24)	0.05	0.00	(0.37)	0.19	0.00
3000-3999	399	603	(0.11)	0.05	0.00	(0.24)	0.14	0.00	(0.09)	0.04	0.00	(0.23)	0.13	0.00
4000-4999	419	230	0.06	0.07	0.08	0.18	0.26	0.03	0.07	0.07	0.50	0.25	0.34	0.00
5000-5999	110	160	0.03	0.08	0.01	0.17	0.20	0.18	0.04	0.07	0.03	0.18	0.16	0.79
6000-6999	992	426	(0.14)	0.04	0.10	0.25	0.26	0.21	(0.03)	0.03	0.05	0.06	0.18	0.01
7000-7999	157	435	(0.10)	0.02	0.00	(0.19)	0.09	0.00	(0.03)	0.05	0.00	(0.06)	0.15	0.00
8000-8999	40	137	(0.07)	0.05	0.00	(0.05)	0.09	0.05	(0.03)	0.06	0.00	0.01	0.14	0.03

Table 7: 2006 Performance Analysis

Industry	n-no GW	n-GW	EBIT/TA			EBIT/SHE			CFO/TA			CFO/SHE		
			mean-no GW	mean - with GW	P-value	mean - no GW	mean - with GW	P-value	mean - no GW	mean - with GW	P-value	mean - no GW	mean - with GW	P-value
1000-1999	299	136	(0.64)	0.10	0.03	0.24	0.21	0.76	(0.31)	0.12	0.04	0.20	0.30	0.23
2000-2999	387	352	(0.31)	0.05	0.00	(0.54)	0.18	0.00	(0.23)	0.06	0.00	(0.38)	0.19	0.00
3000-3999	365	600	(0.11)	0.05	0.00	(0.23)	0.13	0.00	(0.08)	0.05	0.00	(0.18)	0.11	0.00
4000-4999	412	235	0.06	0.07	0.04	0.22	0.22	0.50	0.08	0.10	0.00	0.30	0.32	0.15
5000-5999	99	162	0.06	0.06	0.70	0.24	0.13	0.92	0.03	0.06	0.00	0.12	0.15	0.17
6000-6999	898	446	(0.01)	0.04	0.02	0.26	0.16	0.50	(0.01)	0.03	0.02	0.08	0.05	0.81
7000-7999	140	427	(0.11)	0.02	0.00	(0.18)	0.03	0.00	(0.01)	0.06	0.00	0.05	0.12	0.08
8000-8999	41	132	(0.16)	0.05	0.00	(0.22)	0.16	0.00	(0.10)	0.06	0.00	(0.19)	0.17	0.00

Table 8: 2007 Performance Analysis

Industry	n-no GW	n-GW	EBIT/TA			EBIT/SHE			CFO/TA			CFO/SHE		
			mean-no GW	mean - with GW	P-value	mean - no GW	mean - with GW	P-value	mean - no GW	mean - with GW	P-value	mean - no GW	mean - with GW	P-value
1000-1999	303	131	(0.53)	0.08	0.00	(0.53)	0.25	0.05	(0.18)	0.11	0.00	(0.14)	0.28	0.04
2000-2999	395	332	(0.33)	0.05	0.00	(0.60)	0.21	0.00	(0.23)	0.21	0.00	(0.38)	0.06	0.00
3000-3999	336	591	(0.10)	0.04	0.00	(0.21)	0.11	0.00	(0.06)	0.05	0.00	(0.11)	0.13	0.00
4000-4999	406	237	0.05	0.07	0.06	0.27	0.24	0.84	0.07	0.09	0.00	0.31	0.35	0.14
5000-5999	91	158	0.03	0.05	0.14	0.08	0.07	0.74	0.04	0.06	0.13	0.10	0.13	0.14
6000-6999	811	458	(0.07)	0.04	0.07	0.12	0.26	0.04	(0.04)	0.04	0.06	0.10	0.19	0.11
7000-7999	137	407	(0.06)	0.02	0.00	(0.13)	0.05	0.00	0.00	0.07	0.00	0.07	0.15	0.04
8000-8999	56	135	(0.48)	(0.03)	0.00	0.12	0.32	0.14	(0.29)	(0.01)	0.00	0.10	0.47	0.10

Table 9: 2008 Performance Analysis

Industry	n-no GW	n-GW	EBIT/TA			EBIT/SHE			CFO/TA			CFO/SHE		
			mean-no GW	mean - with GW	P-value	mean - no GW	mean - with GW	P-value	mean - no GW	mean - with GW	P-value	mean - no GW	mean - with GW	P-value
1000-1999	312	113	(0.80)	0.08	0.03	(0.35)	0.16	0.09	(0.29)	0.12	0.02	0.19	0.28	0.15
2000-2999	359	294	(0.36)	0.05	0.00	(0.78)	0.27	0.00	(0.29)	0.06	0.00	(0.61)	0.25	0.00
3000-3999	389	517	(0.13)	0.04	0.00	(0.26)	0.14	0.00	(0.09)	0.06	0.00	(0.17)	0.18	0.00
4000-4999	441	250	(0.56)	0.07	0.06	(0.20)	(0.64)	0.87	(0.18)	0.10	0.08	0.13	(0.24)	0.89
5000-5999	105	156	(0.10)	0.07	0.00	0.51	0.18	0.90	(0.01)	0.08	0.00	0.64	0.13	0.94
6000-6999	820	412	(0.28)	0.03	0.05	0.18	(0.39)	0.95	(0.07)	0.03	0.04	0.18	0.01	0.84
7000-7999	149	340	(0.09)	0.04	0.00	(0.18)	0.16	0.00	(0.03)	0.09	0.00	(0.03)	0.29	0.00
8000-8999	38	118	(0.12)	0.07	0.00	(0.16)	0.28	0.00	(0.05)	0.09	0.00	(0.02)	0.32	0.00

Table 10: 2009 Performance Analysis

Industry	n-no GW	n-GW	EBIT/TA			EBIT/SHE			CFO/TA			CFO/SHE		
			mean-no GW	mean-with GW	P-value	mean-no GW	mean-with GW	P-value	mean-no GW	mean-with GW	P-value	mean-no GW	mean-with GW	P-value
1000-1999	218	113	(0.06)	0.03	0.00	(0.16)	0.06	0.00	0.04	0.11	0.00	0.16	0.22	0.05
2000-2999	235	288	(0.07)	0.06	0.00	(0.23)	0.23	0.00	(0.05)	0.08	0.00	(0.10)	0.28	0.00
3000-3999	292	486	(0.03)	0.03	0.00	(0.10)	0.08	0.00	0.01	0.08	0.00	0.01	0.21	0.00
4000-4999	390	211	0.05	0.07	0.00	0.17	0.29	0.00	0.08	0.10	0.01	0.28	0.43	0.00
5000-5999	105	147	(0.02)	0.06	0.00	0.14	(0.21)	0.88	0.01	0.10	0.00	0.54	0.20	0.95
6000-6999	826	365	(0.33)	0.03	0.06	0.30	0.08	0.87	(0.24)	0.04	0.08	(0.20)	0.10	0.14
7000-7999	117	311	0.03	0.06	0.00	0.10	0.17	0.04	0.06	0.11	0.00	0.24	0.28	0.12
8000-8999	60	83	0.04	0.08	0.04	0.04	0.30	0.02	0.07	0.10	0.07	0.14	0.37	0.04

Table 11: 2010 Performance Analysis

Industry	n-no GW	n-GW	EBIT/TA			EBIT/SHE			CFO/TA			CFO/SHE		
			mean-no GW	mean - with GW	P-value	mean - no GW	mean - with GW	P-value	mean - no GW	mean - with GW	P-value	mean - no GW	mean - with GW	P-value
1000-1999	267	112	(0.58)	0.06	0.05	0.09	0.10	0.23	(0.10)	0.09	0.00	0.32	0.19	0.83
2000-2999	383	304	(0.50)	0.05	0.00	(0.05)	0.08	0.07	(0.37)	0.05	0.00	(0.08)	0.00	0.15
3000-3999	364	525	(0.23)	0.04	0.00	(0.22)	0.11	0.00	(0.13)	0.05	0.00	(0.18)	0.09	0.00
4000-4999	398	243	(0.35)	0.07	0.08	0.17	0.15	0.78	(0.31)	0.10	0.09	0.17	0.23	0.18
5000-5999	155	83	(0.02)	0.07	0.03	(0.42)	0.25	0.06	0.04	0.07	0.05	(0.28)	0.21	0.06
6000-6999	783	346	(0.19)	0.04	0.06	(0.13)	0.19	0.11	(0.14)	0.04	0.06	0.30	0.17	0.85
7000-7999	163	366	(0.50)	0.04	0.00	0.02	0.08	0.20	(0.30)	0.08	0.00	0.14	0.26	0.16
8000-8999	54	105	(0.21)	0.07	0.00	(0.27)	0.05	0.06	(0.10)	0.09	0.00	0.27	0.09	0.90

6. Conclusion

Return on assets is alsmost always significant across all ten years and all industries. This replicates Vance's research. Cash flow over total assets also supports this finding. This proves that it does not matter if return is measured as income or as cash flow from operations in this context.

Return on equity is usually significant for SIC code 2,000-2,999, 3,000-3,999, 7,000-7,999, 8,000-8,999, which are manufacturing industries and service industries. Return on equity is usually not significant (when $\alpha= 0.10$) for transportations (SIC Code: 4,000-4,999), retails (5,000-5,999) and financial service industries (6,000-6,999). Half of the firms have return on equity significant in mining and construction (1,000-1,999), and half of them do not. Cash flow over shareholder's equity mimics return on equity. So it does not matter if return is measured as income or as cash flow from operations.

Year-to-year affects mean returns as firms follow the business cycle, but the results mentioned above are no different here. In other words, the difference between the means is not affected by the business cycle.

The major conclusion from the empirical analysis is that: All companies with goodwill have higher returns on assets than the companies without goodwill. Companies with goodwill in manufacturing and services industries generate greater returns on shareholder's equity than those without goodwill. So those companies with goodwill have enough residual profit to pay shareholders after they pay off the interest to creditors. Companies with goodwill in transportations, retails and financial services are financing the mergers and acquisitions with debt, so they are generating extra returns on assets to cover incremental interest fully or partially.

Once they pay interest, companies with goodwill do not have enough residual profit to pay shareholders significantly higher returns relative to the companies without goodwill.

References

Catlett, G.R. and N.O. Olson, *Accounting for Goodwill,* Accounting Research Study No. 10 (New York: American Institute of Certified Public Accountants, 1968).

Compustat, Standard & Poor's, a Division of the McGraw-Hill Companies, Inc. New York

Financial Accounting Standards Board, *Statement of Financial Accounting Standards No. 141 Business Combinations* (SFAS141). (Financial Accounting Standards Board, June 2001).

Financial Accounting Standards Board, *Statement of Financial Accounting Standards No. 142 Goodwill and Other Intangible Assets* (SFAS142). (Financial Accounting Standards Board, June 2001).

Hamlen, S.S., R.J. Huefner, and J.A. Largay III, *Advanced Accounting* (New York: Cambridge Business Publishers, 2010).

Johnson, T.L. and K.R. Petrone. 1998. "Is goodwill an asset?" *Accounting Horizons* (September 1998) Vol.12 Issue 3, 293-304.

Lander, G. and A. Reinstein. "Models to Measure Goodwill Impairment," *International Advances in Economic Research* (August 2003) Vol. 9 Issue 3,227-232.

Mason R.D., D.A. Lind and W.G. Marchal. *Statistical Techniques in Business and Economics*, Tenth Edition (1999).

Massoud, M.F. and Raiborn, C.A. "Accounting for Goodwill: Are We Better Off?" *Review of Business* (Spring 2003) Vol.24 Issue 2, 26-32.

Samuelson, R.A. "The concept of assets in accounting theory," *Accounting Horizons*. (September 1996) Vol. 10 Issue 3, 147-157.

Schuetze, W.P. "What is an asset?" *Accounting Horizons* (September 1993) Vol. 7 No.3, 66-70.

"SFAS141: The First 5 Years *The S&P 100's Reporting of Acquired Intangible Assets 2002 – 2007*", http://www.intangiblebusiness.us/Reports/SFAS-141-The-First-5-Years~1029.html .

Vance D. E. "Return on Goodwill," *Journal of Applied Business Research*, (2010) Vol. 26 No. 2, 93-103.

Academic Vitae - Meixi Chen

EDUCATION

The Pennsylvania State University   University Park, Pennsylvania

- **School of Hospitality Management**   September 2008- May 2012
  B.S. Hotel, Restaurant and Institutional Management

- **Schreyer Honors College**
  Honors thesis of goodwill impact on equity value in Accounting during Mergers and Acquisition

The University of Virginia   Charlottesville, Virginia

- **McIntire School of Commerce**   September 2012-May 2013
  M.S. in Accounting - Financial Assurance Track

Languages: English & Mandarin Chinese

WORK EXPERIENCE

Thayer Lodging Group
Annapolis, Maryland

Staff Accountant and Asset Management Analyst   Summer 2011

- Reevaluated revenues and expenses, cash flows, IRR and NPV of 17 Thayer owned properties for Lodging Opportunity Funds
- Performed Internal Audit of quarterly Balance Sheet, Income Statement and Cash Flows Statement of Thayer owned 6 properties
- Evaluated and discussedThayer financial statments with users from Bank of America and Wells Fargo
- Participated to revise 2012 business plan template for Thayer owned properties
- Contributed in 5-year forecasting analysis for the 2nd quarter Portfolio Review
- Participated in quarterly financial statements and booking pace review of DC area Marriott properties

American Cruise Lines
Guilford, Connecticut *Steward and Assistant Hotel Manager*   Summer 2010
- Managed service on 100-guest-capacity luxury cruise ships on 12 itineraries
- Supervised twenty new stewards using strong leadership skills
- Maintained records for accounts receivable and accounts payable of tourism and food inventory

Sheraton New York Hotel & Towers
New York, New York
Accounting & Revenue Management Analyst, Front Office and Housekeeping Assistant   Winter 2009 & 2008
- Presented in morning briefing regarding historical booking pace and rate optimization

- Executed A/R and A/P projects, invoice reimbursement, SPG award redemption and commission payment
- Coordinated with Six Sigma department in strategic decision making processes of revenue/yield management
- Analyzed competitive price engine, inventory control, and Starwood Global Distribution System
- Proficiency in Galaxy and Lightspeed property management systems

ACTIVITIES/LEADERSHIP

American Hotel & Lodging Association

Fundraising Chair, New Member Chair   August 2009– May2010

- Coordinated Valentine's package sales with profit of over $500
- Recruited 30 new members by developing effective promotional campaign

Asian Pacific Americans Caucus

Treasurer   May 2009– Present

- Raised over $2,500 in funds for club Spotlight performance by NBC comedy star Steve Byrne
- Managed and secured over $8,000 in other club funds for school events, such as performances by Elliot Chang and Danny Chow

SKILLS, INTERESTS & AWARDS

- 2010 PricewaterhouseCoopers Case Competition Team Leader
- PSU American Lodging Investment Summit Scholarship
- Women's Leadership Initiative Awards