

Running Head: Yum! Brands Financial Analysis

Sample Project 3

Yum! Brands Inc.:
A Financial Ratio Analysis, Capital Structure Estimate,
Cost of Capital, Cash Flow Estimation and Capital Budgeting Analysis

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Executive Summary

A capital budget analysis of Yum! Brands, Inc. concludes that this organization is in relatively good financial health as compared to the restaurant industry. Yum! Brands, Inc. is a diverse organization. Its principal divisions are KFC, Taco Bell, Pizza Hut, Long John Silvers and A&W. It has more restaurants than any other restaurant company in the world. However its sales volume is only 1/4th that of McDonalds Corporation.

Due to expansion in China, Yum! Brands is currently experiencing significant growth. Because it is in an organization that typically funds much of its growth from cash flow, it uses little debt to fund its operations. Yum and McDonalds have invoked a strategy of buying back stock over the past several years. This has been done using earnings. Each company also has managed to pay dividends at an increasing rate over the course of the past five years. Conversely, CKE, Inc., the owner of Carl's Jr. and Hardees brands, has been experiencing a significant reduction in its profits and has had some financing difficulties as a result.

The evaluation of an expansion project indicates that Yum! Brands can expect a significant return on its investment. It will also receive substantial cash flows from the project.

Liquidity Ratios

Exhibit 1a Diagram of Current and Quick Ratio Trend Analysis

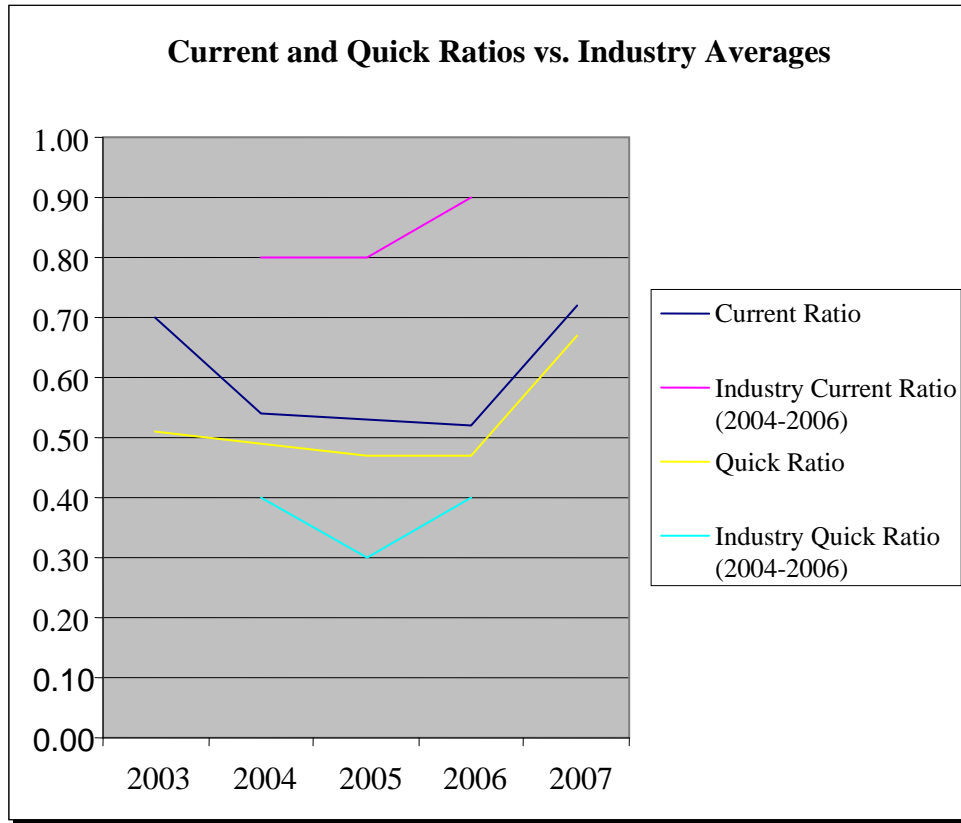


Exhibit 1b Trend Analysis of Current and Quick Ratios¹

Ratio	2003	2004	2005	2006	2007	Average ²	Comparison Comments
Current Ratio	0.70	0.54	0.53	0.52	0.72	0.53	Unfavorable ³
Industry Current Ratio (2004-2006)		0.80	0.80	0.90		0.83	
Quick Ratio	0.51	0.49	0.47	0.47	0.67	0.48	Favorable
Industry Quick Ratio (2004-2006)		0.40	0.30	0.40		0.37	

¹ Trend analysis is computed using five year results for Yum! Brands, Inc. Industry results were only available for a three year period from 2004-2006 and are included for illustrative purposes.

² Average is computed using 2004-2006 results for both Yum! Brands, Inc. and the industry. This is done to ensure a proper comparison.

³ A comparison system is used for purposes of evaluation of the results of Yum! Brands, Inc. versus the industry. This comparison ranges from high to low as follows: Highly favorable- results are superior to the industry; Favorable- results are slightly better than the industry; Comparable- results are similar to the industry; Unfavorable- results are slightly less than the industry; Highly Unfavorable- results are significantly poorer than the industry.

The trend for the current ratio had been deteriorating until 2007. The 2007 result appears to indicate the possibility that the company is improving in this area- reflective of its 2003 results. It still remains unfavorable to the industry result. The company's quick ratio has remained relatively unchanged during the analysis period and remains favorable versus the industry.

Exhibit 2a Diagram of Current Liabilities to Net Worth Trend Analysis

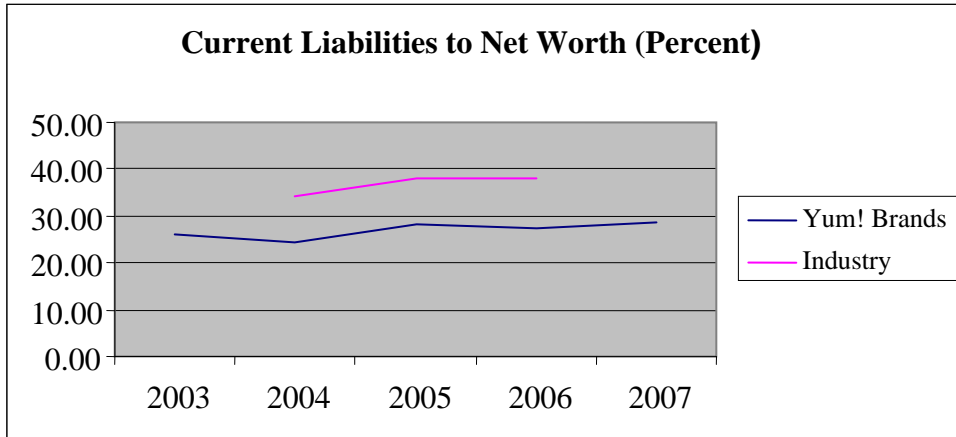


Exhibit 2b Trend Analysis of Current Liabilities to Net Worth

Ratio	2003	2004	2005	2006	2007	Average	Comparison Comments
Yum! Brands	26.00	24.16	28.00	27.14	28.47	26.43	Favorable
Industry	-	34.00	38.20	38.20	-	36.80	

Exhibit 3a Diagram of Current Liabilities to Inventory Trend Analysis

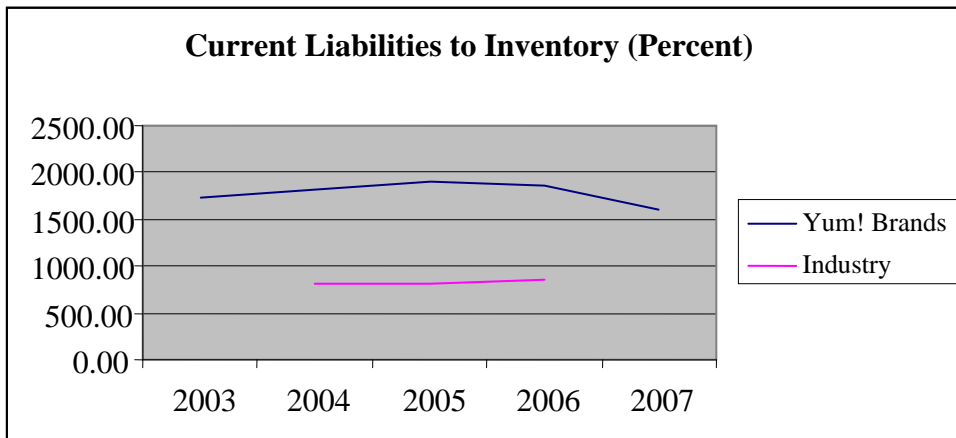


Exhibit 3b Trend Analysis of Current Liabilities to Inventory (Percent)

Ratio	2003	2004	2005	2006	2007	Average	Comparison Comments
Yum! Brands	1726.87	1810.53	1909.41	1853.76	1610.94	1857.90	Unfavorable
Industry		806.10	821.80	858.80		828.90	

Exhibit 4a Diagram of Total Liabilities to Net Worth

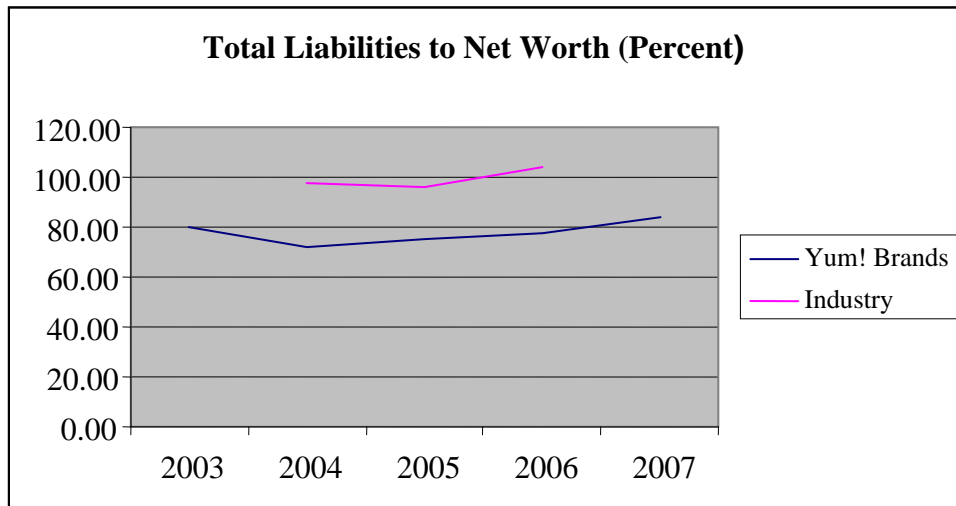


Exhibit 4b Trend Analysis of Total Liabilities to Net Worth (Percent)

Ratio	2003	2004	2005	2006	2007	Average	Comparison Comments
Yum! Brands	80.07	72.00	75.00	77.38	84.27	74.79	Favorable
Industry		97.40	96.00	103.70		99.03	

Exhibit 5a Diagram of Fixed Assets to Net Worth (Percent)

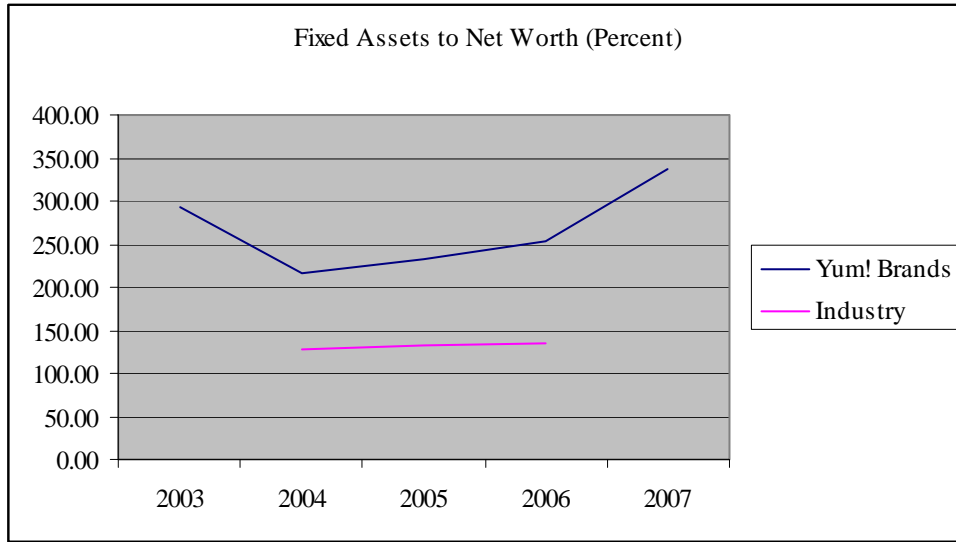


Exhibit 5b Trend Analysis of Fixed Assets to Net Worth (Percent)

Ratio	2003	2004	2005	2006	2007	Average	Comparison Comments
Yum! Brands	292.86	215.61	231.61	252.68	337.92	233.30	Highly Unfavorable
Industry		128.80	131.90	134.90		131.87	

Efficiency/Asset Management Ratios

Exhibit 5a Diagram of Sales to Inventory (Times)

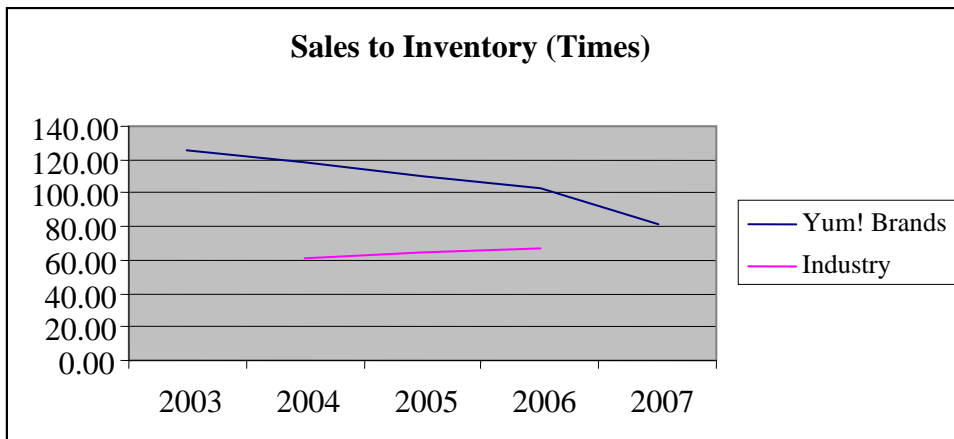


Exhibit 5b Trend Analysis of Sales to Inventory (Times)

Ratio	2003	2004	2005	2006	2007	Average	Comparison Comments
Yum! Brands	125.07	118.57	109.99	102.81	81.38	110.46	Unfavorable
Industry		60.90	65.10	66.60		64.20	

Exhibit 6a Diagram of Assets to Sales

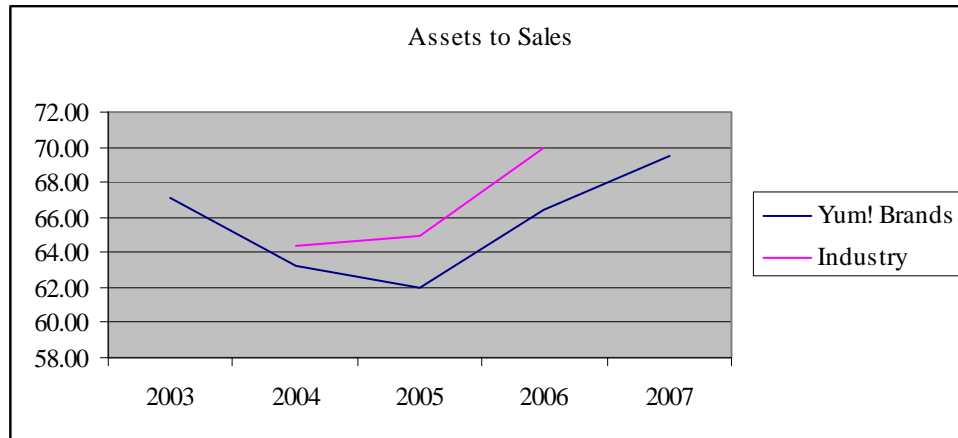


Exhibit 6b Trend Analysis of Assets to Sales

Ratio	2003	2004	2005	2006	2007	Average	Comparison Comments
Yum! Brands	67.06	63.21	62.00	66.45	69.53	63.89	Comparable
Industry		64.40	64.90	69.90		66.40	

Exhibit 7a Diagram of Sales to Net Working Capital (Times)

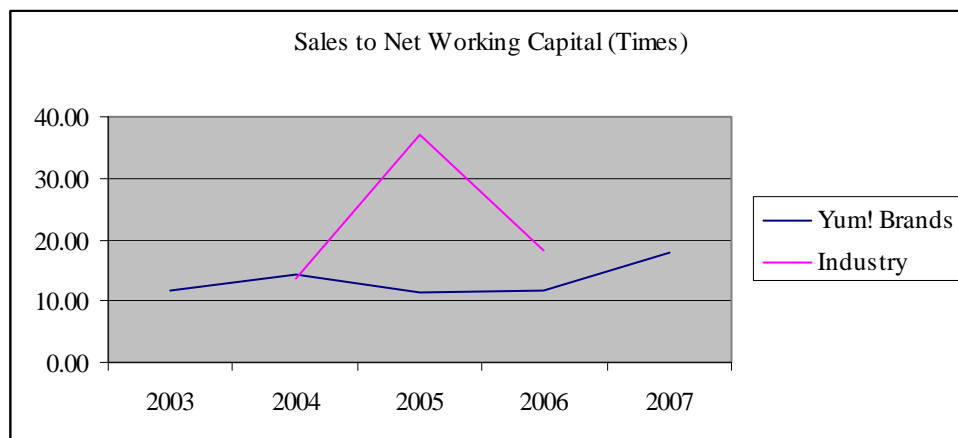


Exhibit 7b Trend Analysis of Net Working Capital (Times)

Ratio	2003	2004	2005	2006	2007	Average	Comparison Comments
Yum! Brands	11.84	14.33	11.36	11.62	17.93	12.43	Highly Favorable
Industry		13.60	37.10	18.20		22.97	

Exhibit 8a Diagram of Accounts Payable to Sales

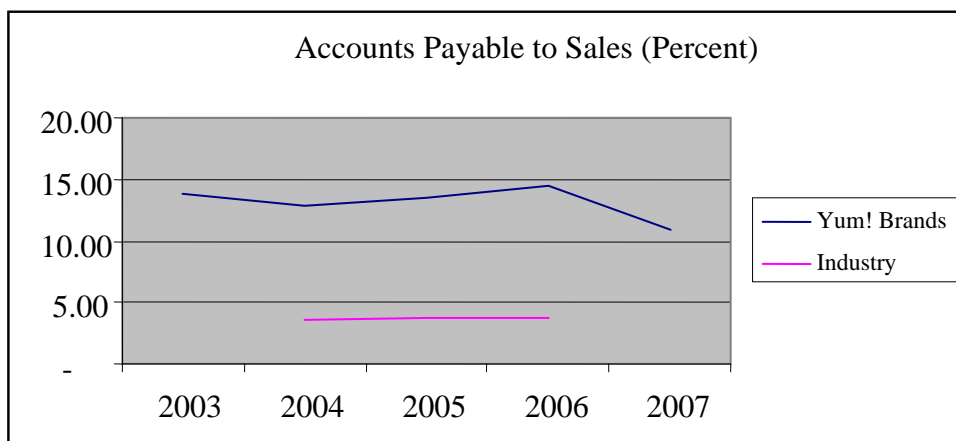


Exhibit 8b Trend Analysis of Accounts Payable to Sales

Ratio	2003	2004	2005	2006	2007	Average	Comparison Comments
Yum! Brands	13.81	12.87	13.44	14.50	10.93	13.60	Unfavorable
Industry		3.50	3.80	3.80		3.70	

Profitability

Exhibit 8a Diagram of Return on Sales

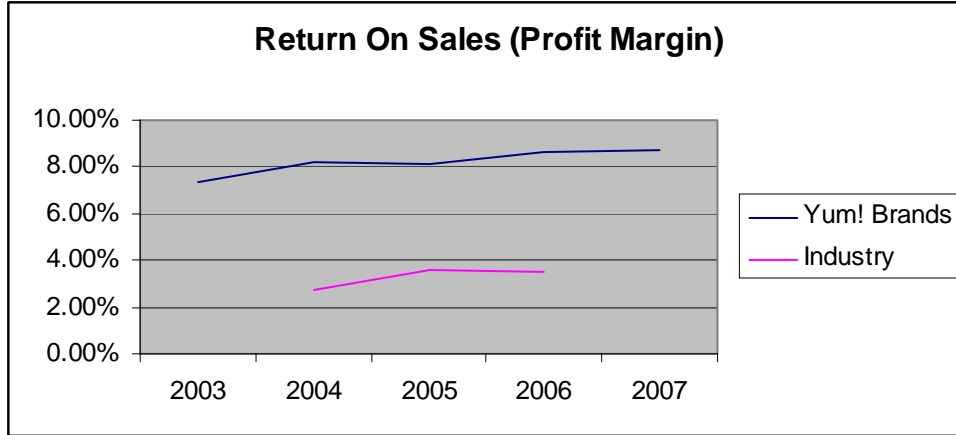


Exhibit 8b Trend Analysis of Return on Sales

Ratio	2003	2004	2005	2006	2007	Average	Comparison Comments
Yum! Brands	7.36%	8.21%	8.15%	8.62%	8.72%	8.33%	Highly Favorable
Industry	-	2.70%	3.60%	3.50%	-	3.27%	

Exhibit 8a Diagram of Return on Assets

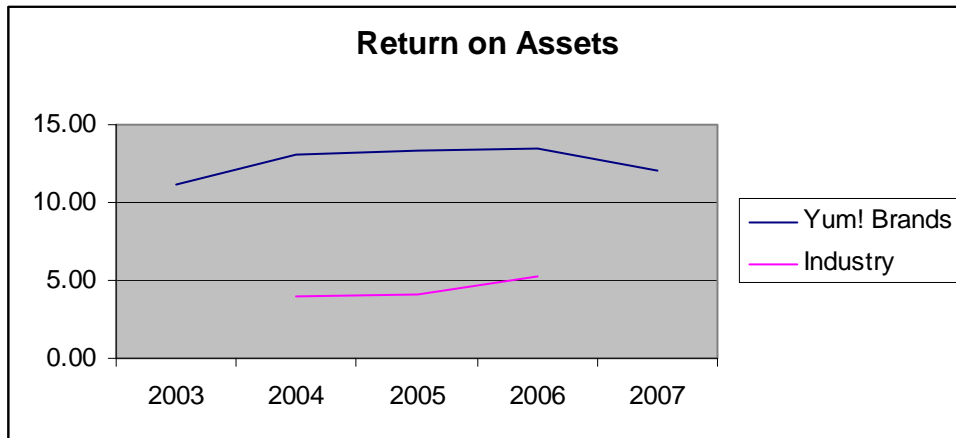


Exhibit 8b Trend Analysis of Return on Assets

Ratio	2003	2004	2005	2006	2007	Average	Comparison Comments
Yum! Brands	11.20	13.10	13.30	13.50	12.03	13.30	Highly Favorable
Industry	-	4.00	4.10	5.20	-	4.43	

Exhibit 8a Diagram of Return on Net Worth

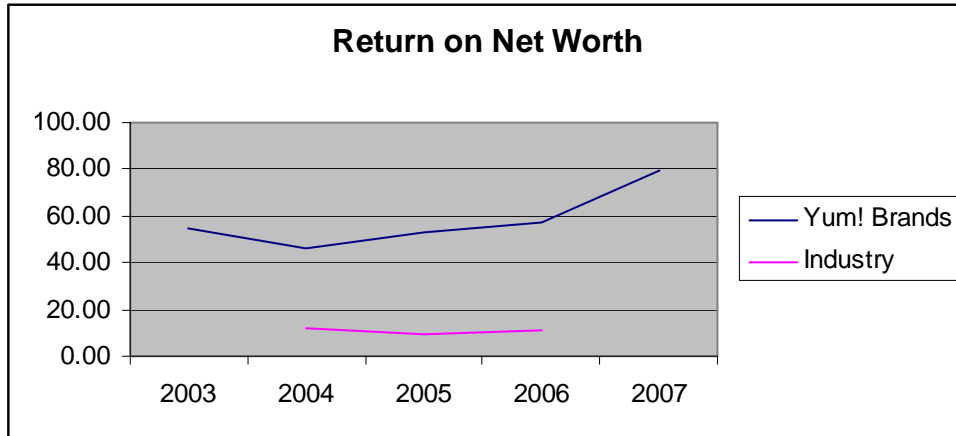


Exhibit 8b Trend Analysis of Return on Net Worth

Ratio	2003	2004	2005	2006	2007	Average	Comparison Comments
Yum! Brands	55.09	46.39	52.59	57.34	79.80	52.11	Highly Favorable
Industry	-	11.90	9.00	10.90	-	10.60	

Exhibit 8a Diagram of Basic Earning Power

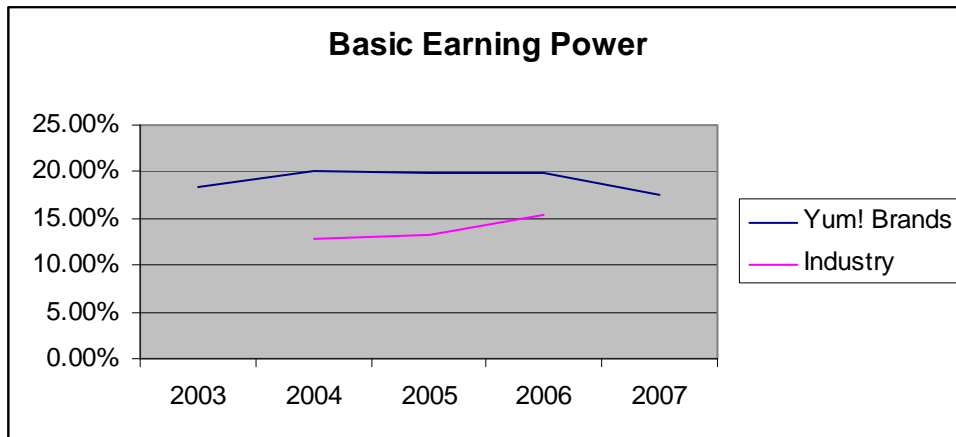


Exhibit 8b Trend Analysis of Basic Earning Power

Ratio	2003	2004	2005	2006	2007	Average	Comparison Comments
Yum! Brands	18.33%	20.00%	19.89%	19.86%	17.61%	19.92%	Highly Favorable
Industry	-	12.72%	13.31%	15.32%	-	13.78%	

Exhibit 8a Diagram of Return on Common Equity

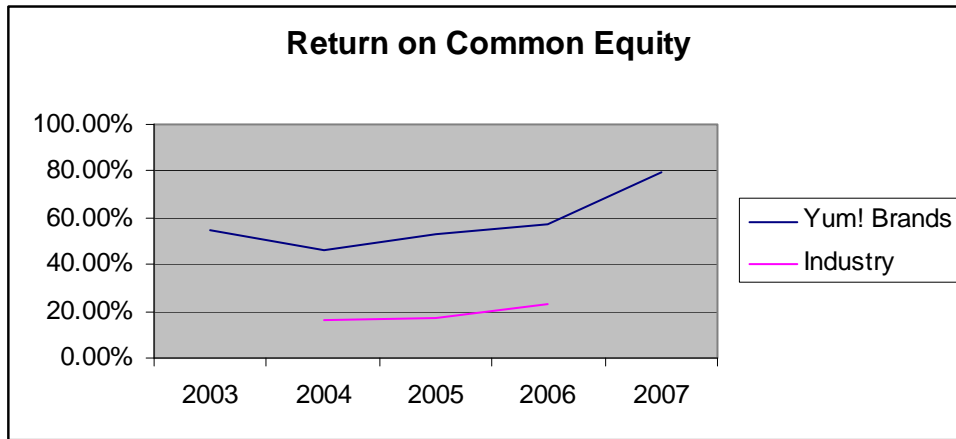


Exhibit 8b Trend Analysis of Return on Common Equity

Ratio	2003	2004	2005	2006	2007	Average	Comparison Comments
Yum! Brands	55.09%	46.39%	52.59%	57.34%	79.81%	52.11%	Highly Favorable
Industry	-	16.04%	17.18%	22.93%	-	18.72%	

Market Value

Exhibit 8a Diagram of Price to Earnings (GAAP)

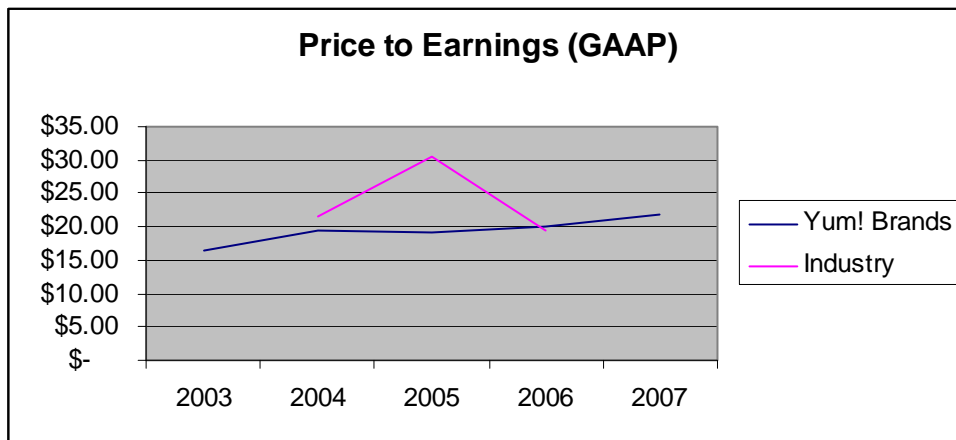


Exhibit 8b Trend Analysis of Price to Earnings (GAAP)

Ratio	2003	2004	2005	2006	2007	Average	Comparison Comments
Yum! Brands	\$ 16.60	\$ 19.45	\$ 19.20	\$ 19.91	\$ 21.91	\$ 19.52	Comparable
Industry	-	\$ 21.41	\$ 30.52	\$ 19.36	-	\$ 23.76	

Exhibit 8a Diagram of Earnings per Share (GAAP)

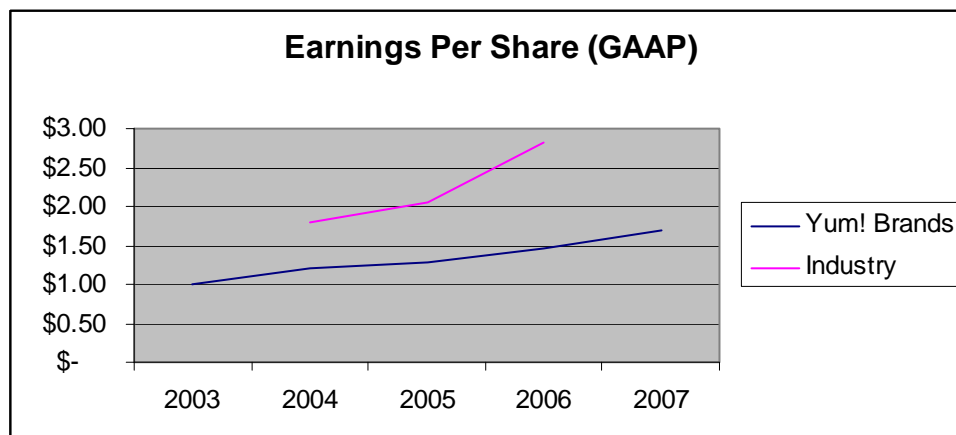


Exhibit 8b Trend Analysis of Earnings Per Share (GAAP)

Ratio	2003	2004	2005	2006	2007	Average	Comparison Comments
Yum! Brands	\$ 1.01	\$ 1.21	\$ 1.28	\$ 1.46	\$ 1.68	\$ 1.32	Unfavorable
Industry		\$ 1.79	\$ 2.04	\$ 2.83		\$ 2.22	

Exhibit 8a Diagram of Cash Flow per Share

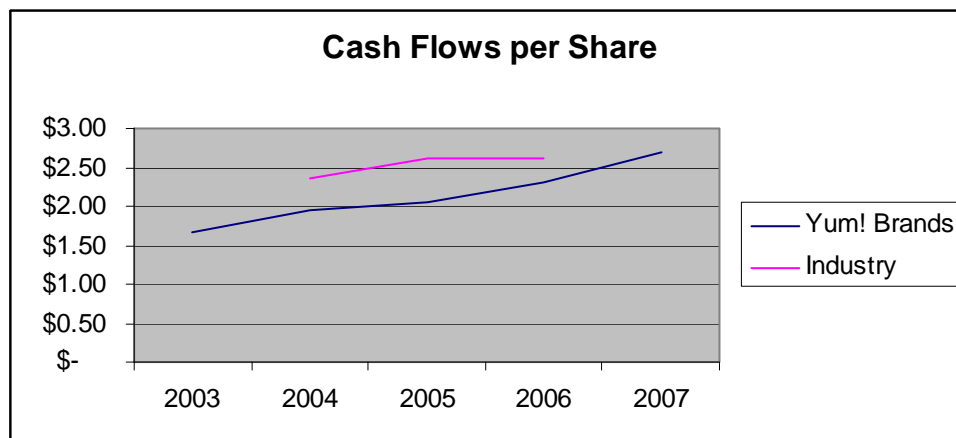


Exhibit 8b Trend Analysis of Cash Flow/Share

Ratio	2003	2004	2005	2006	2007	Average	Comparison Comments
Yum! Brands	\$ 1.67	\$ 1.95	\$ 2.06	\$ 2.31	\$ 2.68	\$ 2.11	Unfavorable
Industry		\$ 2.35	\$ 2.61	\$ 2.61		\$ 2.53	

Exhibit 8a Diagram of Book Value per Share

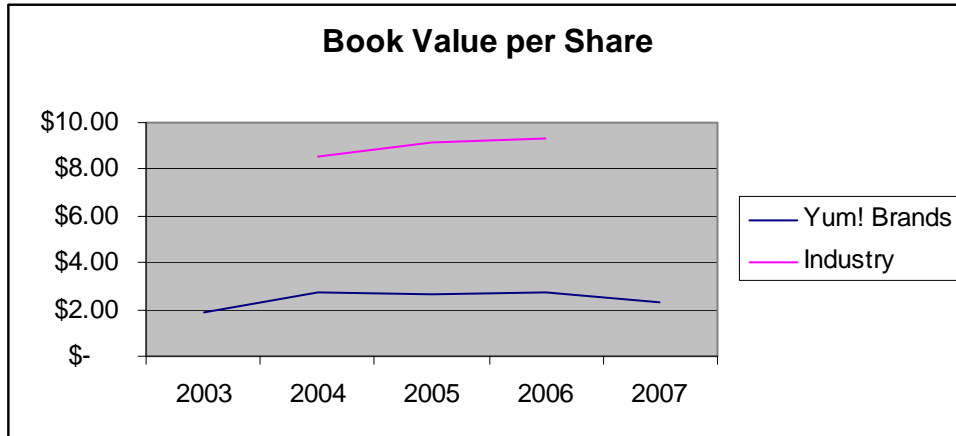


Exhibit 8b Trend Analysis Book Value per Share

Ratio	2003	2004	2005	2006	2007	Average	Comparison Comments
Yum! Brands	\$ 1.92	\$ 2.75	\$ 2.61	\$ 2.74	\$ 2.28	\$ 2.70	Highly Unfavorable
Industry	-	\$ 8.55	\$ 9.12	\$ 9.31	-	\$ 8.99	

Exhibit 8a Diagram of Dividend Yield

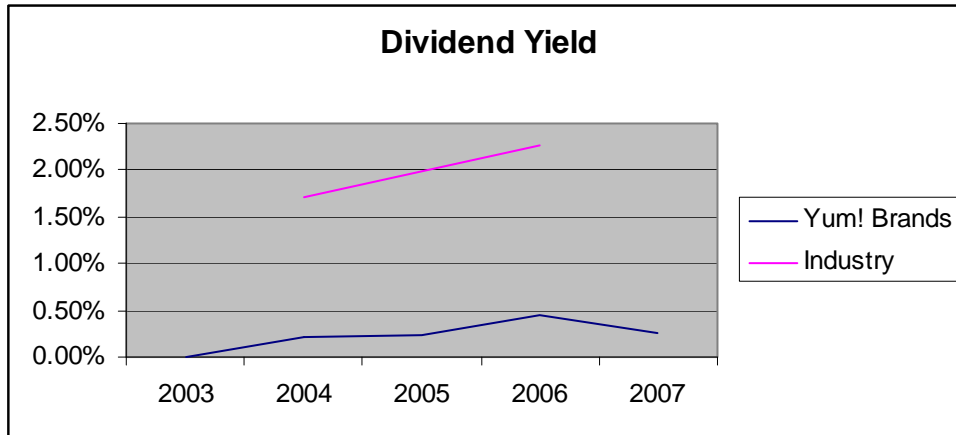


Exhibit 8b Trend Analysis of Dividend Yield

Ratio	2003	2004	2005	2006	2007	Average	Comparison Comments
Yum! Brands	0.00%	0.21%	0.23%	0.45%	0.26%	0.30%	Unfavorable
Industry	-	1.72%	1.99%	2.26%	-	1.99%	

Debt Management

Exhibit 8a Diagram of Debt Ratio

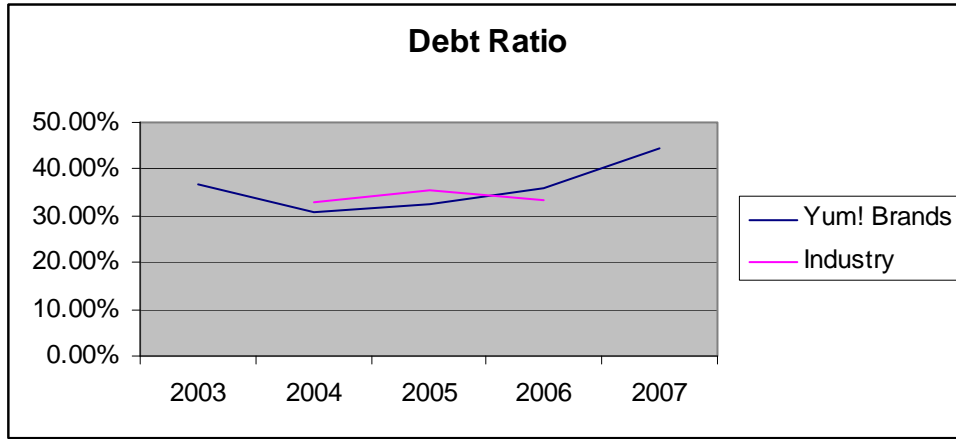


Exhibit 8b Trend Analysis of Debt Ratio

Ratio	2003	2004	2005	2006	2007	Average	Comparison Comments
Yum! Brands	36.76%	30.58%	32.64%	35.76%	44.35%	33.00%	Comparable
Industry	-	33.12%	35.47%	33.47%	-	34.02%	-

Exhibit 8a Diagram of Times Interest Earned

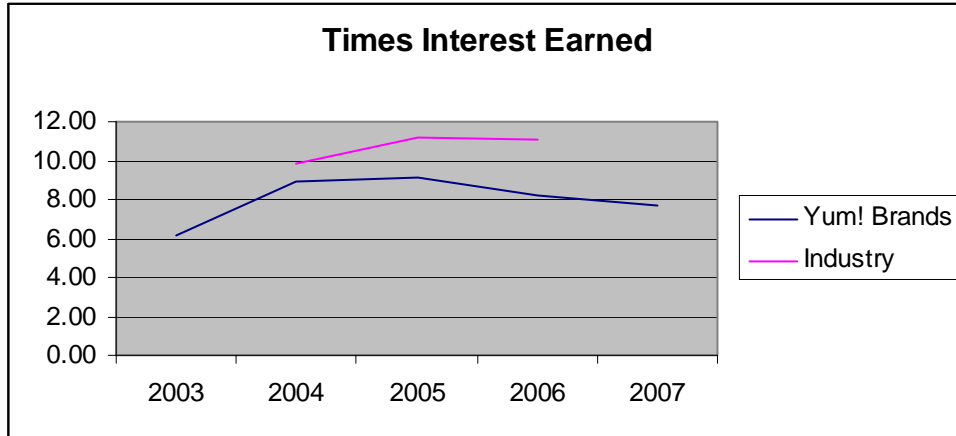


Exhibit 8b Trend Analysis of Times Interest Earned

Ratio	2003	2004	2005	2006	2007	Average	Comparison Comments
Yum! Brands	6.12	8.95	9.08	8.19	7.68	8.74	Unfavorable
Industry	-	9.87	11.21	11.06	-	10.71	-

Exhibit 8a Diagram of Long-Term Debt to Equity

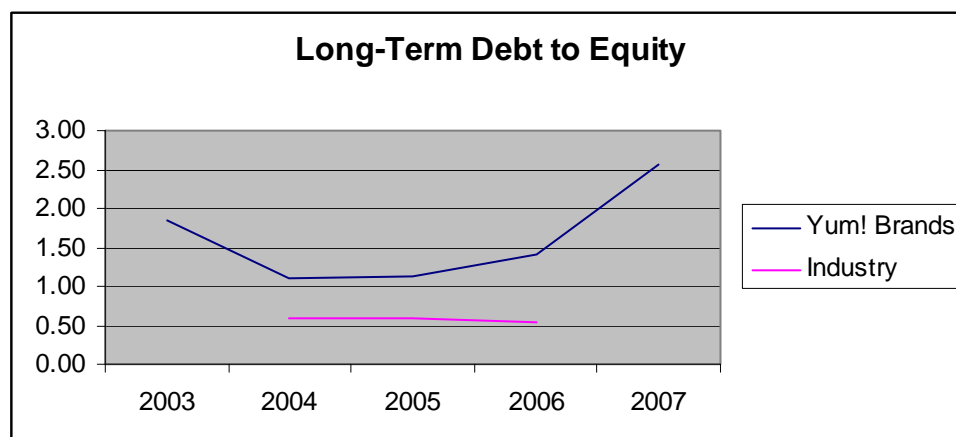


Exhibit 8b Trend Analysis of Long-Term Debt to Equity

Ratio	2003	2004	2005	2006	2007	Average	Comparison Comments
Yum! Brands	1.84	1.09	1.14	1.42	2.57	1.22	Unfavorable
Industry		0.59	0.58	0.54		0.57	

Capital Structure Analysis

A complete analysis of the capital structure of Yum! Brands, Inc. would not be complete without a comparison to industry competitors. For the purposes of this analysis CKE Restaurants, Inc. and McDonalds Corporation, Inc. are compared and contrasted with the subject organization. CKE Restaurants, Inc. operates or franchises over 3,000 Carl Jr's, Hardees, La Salsa, Red Burrito and Green Burrito restaurants. McDonalds is the industry leader. Each offers an interesting juxtaposition to Yum! Brands, Inc.

Target Capital Structure

The firms are not open with their target capital structure, but each demonstrates active management of this facet of their financial composition. In the 2007 financial reporting of CKE it reports, “[t]he company maintains... a solid capital structure, which improved significantly with this year’s excellent results” (CKE Annual Report, 2007). The company continues, “[b]y any metric, our balance sheet continues to improve. During fiscal 2007 we reduced our long-term debt by \$81.4 million through voluntary repayments and the induced conversion of \$89.8 million of our convertible notes” (Ibid).

Yum! Brands uses 9% as its targeted weighted average cost of capital (Gopal, 2008). In addition, an analysis is performed here of the past five years of financial results in order to ascertain each firm’s average capital structure over this timeframe. It is likely

that this blended average is an indicator of the capital structure that each firm is most comfortable with and thus indicates its actual targeted capital structure.

Exhibit 9a Comparison of Capital Structure of Yum Brands, CKE, Inc. and McDonald's Corporation at Market Value

Current Estimate of Capital Structure- Market Value						
(in thousands)	YUM	% of Capital	CKE	% of Capital	MCD	% of Capital
Debt						
Short-term	288,000	1.29%	6,823	0.63%	19,911,000	1.86%
Long-term	2,924,000	13.11%	185,439	17.18%	73,100,000	6.82%
Total Debt	3,212,000	14.40%	192,262	17.81%	93,011,000	8.68%
Equity						
Common	19,096,730	85.60%	887,423	82.19%	978,259,460	91.32%
Preferred	-	0%	-	0%	-	0%
Total Equity	19,096,730	85.60%	887,423	82.19%	978,259,460	91.32%
Total Capital	22,308,730		1,079,685		1,071,270,460	

Exhibit 9b Comparison of Capital Structure of Yum Brands, Inc., CKE, Inc., and McDonald's Corporation at Cost (Book Value)

Current Estimate of Capital Structure- Cost/Book Value						
(in thousands)	YUM	% of Capital	CKE	% of Capital	MCD	% of Capital
Debt						
Short-term	288,000	7.76%	6,823	2.63%	19,911,000	18.16%
Long-term	2,924,000	78.79%	185,439	71.46%	73,100,000	66.69%
Total Debt	3,212,000	86.55%	192,262	74.09%	93,011,000	84.85%
Equity						
Common	499,000	13.45%	67,229	25.91%	16,606,000	15.15%
Preferred	-	0%	-	0%	-	0%
Total Equity	499,000	13.45%	67,229	25.91%	16,606,000	15.15%
Total Capital	3,711,000		259,491		109,617,000	

Exhibit 9c Yum! Brands Capital Structure Analysis

Yum! Brands Capital Structure	2007	2006	2005	2004	2003	Average	Percent Book Value	Percent Market Value
(in thousands)								
Debt								
Short-term	288,000	227,000	211,000	11,000	10,000	149,400	6.70%	6.70%
Long-term	2,924,000	2,045,000	1,649,000	1,731,000	2,056,000	2,081,000	93.30%	93.30%
Total Book/Market Value of Debt	<u>3,212,000</u>	<u>2,272,000</u>	<u>1,860,000</u>	<u>1,742,000</u>	<u>2,066,000</u>	<u>2,230,400</u>		
Equity								
Common- cost	499,000	530,000	556,000	580,000	584,000	549,800	100%	
Common- market	19,096,730	31,164,000	26,065,280	27,364,400	19,003,360	24,538,754		100%
Preferred-cost	0	0	0	0	0	0		
Preferred- market	0	0	0	0	0	0		
Total Book Value of Equity	499,000	530,000	556,000	580,000	584,000	549,800		
Total Market Value of Equity	19,096,730	31,164,000	26,065,280	27,364,400	19,003,360	24,538,754		
Market value of common stock is computed as year end stock price times outstanding shares. Total shares adjusted for 2-1 stock split in 2007.								

Exhibit 9d CKE, Inc. Capital Structure Analysis

CKE Capital Structure	2007	2006	2005	2004	2003	Average	Percent Book Value	Percent Market Value
(in thousands)								
Debt								
Short-term	6,823	14,207	16,066	33,871	35,089	21,211	7.91%	7.91%
Long-term	185,439	257,278	243,418	222,428	325,915	246,896	92.09%	92.09%
Total Book/Market Value of Debt	<u>192,262</u>	<u>271,485</u>	<u>259,484</u>	<u>256,299</u>	<u>361,004</u>	<u>268,107</u>		
Equity								
Common- cost	67,229	59,803	58,082	57,631	57,283	60,006	100%	
Common-market	887,423	1,100,375	7,847	836,226	366,038	639,582		100%
Preferred-cost	0	0	0	0	0	0		
Preferred-market	0	0	0	0	0	0		
Total Book Value of Equity	67,229	59,803	58,082	57,631	57,283	60,006		
Total Market Value of Equity	887,423	1,100,375	7,847	836,226	366,038	639,582		

Market value of common stock is computed as year end stock price times outstanding shares. Note: Book and Market Value of debt are stated as identical because they are relatively close in value and the company has not experienced a change in credit rating. Capital Leases, both short and long term are treated as debt.

Exhibit 9e McDonald's Corporation Capital Structure Analysis

McDonalds Capital Structure	2007	2006	2005	2004	2003	Average	Percent Book Value	Percent Market Value
(in thousands)								
Debt								
Short-term	19,911,000	13,245,000	17,021,000	8,622,000	3,880,000	12,535,800	12.90%	12.90%
Long-term	73,100,000	83,899,000	89,343,000	83,573,000	93,425,000	84,668,000	87.10%	87.10%
Total Book/Market Value of Debt	93,011,000	97,144,000	106,364,000	92,195,000	97,305,000	97,203,800		
Equity								
Common- cost	16,606,000	16,606,000	16,606,000	16,606,000	16,606,000	16,606,000	100%	
Common- market	978,259,460	742,786,380	559,954,320	532,388,360	412,326,980	645,143,100		100%
Preferred-cost	0	0	0	0	0	0		
Preferred- market	0	0	0	0	0	0		
Total Book Value of Equity	16,606,000	16,606,000	16,606,000	16,606,000	16,606,000	16,606,000		
Total Market Value of Equity	978,259,460	742,786,380	559,954,320	532,388,360	412,326,980	645,143,100		

Market value of common stock is computed as year end stock price times outstanding shares.

Weighted Average Cost of Capital

A comparison of Yum! Brands, Inc.'s weighted average cost of capital (WACC) as compared to McDonalds and CKE, Inc. reveals a different strategy for each. These firms do not publish their targeted percentages for the different financing sources; however, it can be ascertained from its average over the five years as to what structure they are consistently running.

Cost of Debt Calculation

The three companies do not issue bonds. Each uses Senior Unsecured Notes for 30 year terms. For purposes of estimating WACC we will use the current rate on a 20-year bond for a AAA rated company. That rate is currently 6.67 percent (Yahoo.com, 2008). This is the before-tax component cost of debt. An estimate of the after tax component cost of debt follows:

Exhibit 10 Cost of Debt Calculation

Pre-Tax Cost of Debt	Tax Rate	After-Tax Component Cost of Debt
6.67%	40%	4.00%

Component Cost of Preferred Stock

The three companies do not issue preferred stock.

Estimating Component Cost of Common Equity (CAPM Approach)

Estimating the cost of common stock using the Capital Asset Pricing Model requires the risk free rate. As of the close of markets on April 16, 2008, the rate on a 10-year treasury bond was 3.696 (Yahoo Finance, 2008). The beta for Yum! Brands according to Standard and Poor’s is 1.10 (2008). For purposes of this analysis we will use a market risk premium of 5% (Brigham and Ehrhardt, 2008). The CAPM calculation follows:

Exhibit 11: Cost of Equity Using CAPM

Company	Required Rate of Return	Risk Premium on Market	Beta	Cost of Equity
Yum! Brands	3.7	5%	1.56	11.50%
McDonalds	3.7	5%	1.58	11.60%
CKE, Inc.	3.7	5%	1.57	11.55%

Estimating Component Cost of Common Equity (DCF Approach)

The calculation of discounted cash flow (DCF) is determined using the current stock price, the current dividend and the expected growth rate for dividends. In this calculation we have used the stock values for each company as of the close of business on April 16, 2008. The current dividend is calculated using the annual dividend for 2007. Analysts forecasts are used to estimate future growth rates. Since Yum! Brands, McDonalds and CKE dividend growth cannot be estimated using dividend data, we have

substituted earnings growth rates (Brigham & Ehrhardt, 2008) using data from Zacks.com (2008). The results follow:

Exhibit 12: Cost of Equity- Discounted Cash Flows Approach

Company	Current Stock Price	Current Dividend	Expected Dividend Growth Rate	Required Rate of Return
Yum! Brands	38.68	\$ 0.45	12.2%	13.36%
McDonalds	57.33	\$ 0.15	12.00%	12.26%
CKE, Inc.	11.07	\$ 0.24	0.77%	2.94%

Bond Yield-Plus-Risk-Premium Approach

None of the three organizations issue bonds. As a substitute, we are using the AAA bond rate for a 20 year bond previously stated as 6.67%. It is worth noting that this formulation produces a judgmental estimate. It is intended to “get us in the right ballpark” (Brigham and Ehrhardt, 2008). The results follow:

Exhibit 13: Cost of Equity- Bond-Yield-Plus-Risk-Premium Approach

Company	Bond Yield Estimate	Bond Risk Premium	Required Rate of Return
Yum! Brands	6.67%	4%	10.7%
McDonalds	6.67%	4%	10.7%
CKE, Inc.	6.67%	5%	11.7%

Comparison of CAPM, DCF and Bond-Yield-Plus-Risk-Premium Approaches

It has been determined, after inspection, that the Capital Asset Pricing Model provides the best estimate for the return on common stock. This will be the number used as we analyze the WACC for each organization. In this case, the cost of equity for Yum! Brands, Inc. is 11.50%.

Weighted Average Cost of Capital Using Market-Based Capital Weights

Calculating Yum! Brands, Inc.’s weighted average cost of capital requires the results of the evaluation of the target proportions of debt and equity as well as the component cost of capital. As noted earlier, there are no indications in the firm’s

financials as to the target proportions so a historical average is used with the assumption that the company has actively sought to maintain that as its intended targets. The results of the calculation follows:

Exhibit 14: Weighted Average Cost of Capital Calculation Factors

Category	Value
Weight of Debt	8.68%
Rate of Debt	4%
Inverse of Tax Rate (1-T)	0.6
Weight of Common Equity	91.32%
Rate of Stock	11.50%
WACC	10.71%

Cash Flow Estimation

Yum! Brands is considering a new project. The project has a life of eight years. The initial investment is \$120 million to purchase land, construct a building and purchase equipment, and \$8 million for shipping and installation costs. The fixed assets fall into the 7-year MACRS class. The salvage value of fixed assets is \$30 million. The number of units of the new product expected to be sold in the first year is 800,000 and the expected growth rate is eight percent. The sales price is \$200 per unit and the variable cost is \$150 per unit in the first year. Each will need to be adjusted accordingly based on the estimated annualized inflation rate of three percent. The required net operating working capital (NOWC) is 12 percent of sales. Yum! Brands is in the 40 percent tax bracket. The WACC obtained above of 10.71% will be used as the discount rate.

Exhibit 17A: Analysis of Expansion Project (Sales and Units Sold in 000's)

Years	0	1	2	3	4	5	6	7	8
	2008	2009	2010	2011	2012	2013	2014	2015	2016
Investment Outlays: Long-Term Assets									
Building	(\$128,000)								
Operating Cash Flows over the Project's Life									
Units sold		800	864	933	1,008	1,088	1,175	1,269	1,371
Sales price		200.00	206.00	212.18	218.55	225.10	231.85	238.81	245.97
Sales revenue		160,000	177,984	197,989	220,243	244,999	272,537	303,170	337,246
Variable costs		120,000	133,488	148,492	165,183	183,749	204,402	227,377	252,935

Depreciation		17,920	32,000	21,760	16,640	11,520	11,520	11,520	5,120
Oper. income before taxes (EBIT)		22,080	12,496	27,737	38,421	49,730	56,614	64,272	79,192
Taxes on operating income (40%)		8,832	4,998	11,095	15,368	19,892	22,646	25,709	31,677
Net operating profit after taxes (NOPAT)		13,248	7,498	16,642	23,053	29,838	33,968	38,563	47,515
Add back depreciation		17,920	32,000	21,760	16,640	11,520	11,520	11,520	5,120
Operating cash flow		\$31,168	\$39,498	\$38,402	\$39,693	\$41,358	\$45,488	\$50,083	\$52,635
Cash Flows Due to Net Operating Working Capital									
Net operating working capital (based on sales)	\$19,200	\$21,358	\$23,759	\$26,429	\$29,400	\$32,704	\$36,380	\$40,470	\$0
Cash flow due to investment in NOWC	(\$19,200)	(\$2,158)	(\$2,401)	(\$2,670)	(\$2,971)	(\$3,305)	(\$3,676)	(\$4,089)	\$40,470
Salvage Cash Flows: Long-Term Assets									
Net salvage cash flow									\$18,000
Net cash flow (Time line of cash flows)	(\$128,000)	\$ 50,368	\$ 60,856	\$ 62,161	\$ 66,122	\$ 70,758	\$ 78,193	\$ 86,464	\$ 93,104

Note: See Excel attachment under sheet “Cash Flow Estimation” for formulas for this and other calculations.

Exhibit 17 B: Salvage Calculation (in 000’s)

Market Value When Salvaged	\$30,000
Book Value When Salvaged	0
Expected Gain (Loss)	30,000
Taxes Paid (or credit)	12,000
Net Cash Flow from Salvage	\$18,000

Exhibit 17 C: Depreciation Schedule (in 000’s)

	1	2	3	4	5	6	7	8	Cumulative Depreciation
Year	2009	2010	2011	2012	2013	2014	2015	2016	
Depreciation Rate	14%	25%	17%	13%	9%	9%	9%	4%	
Depreciation	17,920	32,000	21,760	16,640	11,520	11,520	11,520	5,120	128,000
Ending Book Value	\$110,080	\$ 78,080	\$ 56,320	\$ 39,680	\$ 28,160	\$ 16,640	\$ 5,120	\$ -	

Evaluation of Expansion Project

A calculation of net present value (NPV), internal rate of return (IRR), modified internal rate of return (MIRR), profitability index (PI), payback period and discounted payback period are used to gain perspective on the viability of the expansion project.

Based on net present value, this project should be undertaken. NPV is the most reliable of the analysis tools. The NPV is positive therefore it is calculated to be a profitable venture. The internal rate of return also demonstrates that this project is a worthy venture. The cost of capital is considerable less than the internal rate of return. The modified internal rate of return also shows a profitable venture even considering reinvestment at the project’s internal rate of return. Also, there are no unusual cash flows to make the MIRR calculation necessary. The profitability index indicates that this project should return \$2.76 for every dollar invested.

Exhibit 18 A: Evaluating Cash Flows

NPV	\$225,651.92
IRR	46%
MIRR	26%
PI	2.76

The payback periods analysis indicates that the firm can expect the investment to produce positive cash flows in 2.28 years. Considering the discount rate the investment will take slightly longer at 2.54 years.

Exhibit 18 B: Evaluating Cash Flows Using Payback Periods (in 000’s)

Cumulative Cash Flow for Payback	Years								
	0	1	2	3	4	5	6	7	8
Portion of Year Required for Payback		(77,632)	(16,776)	45,385	111,507	182,264	260,457	346,921	440,025
Payback		1.00	1.00	0.28	0.00	0.00	0.00	0.00	0.00
Payback Period		2.28							

Discounted Cash Flow for Payback	Years								
	0	1	2	3	4	5	6	7	8
Cumulative Cash Flow for Payback		45,495	49,651	45,810	44,015	42,544	42,466	42,416	41,255
Portion of Year Required for Payback		(82,505)	(32,854)	12,956	56,971	99,515	141,981	184,397	225,652
Payback		1.00	1.00	0.54	0.00	0.00	0.00	0.00	0.00
Discounted Payback		2.54							

A risk assessment is the final step to determine whether the chance of the calculated positive income is likely. In order to determine risk, a sensitivity analysis and a scenario analysis are processed as follows:

Exhibit 19 A: Scenario Analysis (NPV in 000's)

% Deviation from Base Case	WACC		Base Case	% Deviation from Base Case	1st YEAR UNIT SALES	
		NPV			Units Sold	NPV
		225,652				225,652
-30%	7.5%	\$275,388		-30%	560	\$130,418
-15%	9.1%	\$249,304		-15%	680	\$178,035
0%	10.71%	\$225,652	Base Case	0%	800	\$225,652
15%	12.3%	\$204,155		15%	920	\$273,269
30%	13.9%	\$184,575		30%	1,040	\$320,886

% Deviation from Base Case	VARIABLE COSTS		Base Case	% Deviation from Base Case	GROWTH RATE, UNITS	
	Variable Cost	NPV			Growth	NPV
		225,652				225,652
-30%	\$ 105.00	\$384,376		-30%	2.1%	\$200,030
-15%	\$ 127.50	\$305,014		-15%	2.6%	\$212,728
0%	\$ 150.00	\$225,652	Base Case	0%	3.00%	\$225,652
15%	\$ 172.50	\$146,290		15%	3.5%	\$238,804
30%	\$ 195.00	\$66,928		30%	3.9%	\$252,189

% Deviation from Base Case	SALES PRICE		Base Case
	Sales	NPV	
		225,652	
-30%	\$ 140.00	-\$28,306	
-15%	\$ 170.00	\$98,673	
0%	\$ 200.00	\$225,652	Base Case
15%	\$ 230.00	\$352,631	
30%	\$ 260.00	\$479,610	

Exhibit 19 B: Net Present Value at Different Deviations from Base (in 000's)

Deviation from Base Case	NPV at Different Deviations from Base				
	Sales Price	Variable Cost/Unit	Growth Rate	Year 1 Units Sold	WACC
-30%	(\$28,306)	\$384,376	\$200,030	\$130,418	\$275,388
-15%	\$98,673	\$305,014	\$212,728	\$178,035	\$249,304
0%	\$225,652	\$225,652	\$225,652	\$225,652	\$225,652
15%	\$352,631	\$146,290	\$238,804	\$273,269	\$204,155
30%	\$479,610	\$66,928	\$252,189	\$320,886	\$184,575
Range	\$507,916	\$317,448	\$52,159	\$190,469	\$90,813

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