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PRINCIPAL'S™ REPORT

THE MONTHLY UPDATE FOR ENGINEERING, ARCHITECTURAL, PLANNING, CONSULTING, AND DESIGN FIRM OWNERS

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Increasing Margins

Use This Formula to Value a Closely Held Design Firm

by Mike Hall

Any principal seeking a merger, acquisition, or transfer of ownership must, among the earliest of tasks, compute an accurate valuation of the firm. This article presents a simple formula for valuing a closely held design firm. It then identifies the assumptions that support the valuation formula and the conditions under which this formula produces the correct value.

The formula is intended for use in an internal ownership transfer of a closely held A/E firm. It is the price employees will willingly pay

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Exercising Leadership

Three Leadership Styles: Which One Is Yours?

Successful leaders vary in personality, innate talent, intelligence, and developed skills, but all somehow maintain the ability to set direction, gather and point out resources, and motivate the people in their firms to attain their objectives.

But the way they do it varies, as Ronald Magnus, head of FMI's Leadership Institute (Denver, Colo.; 303-398-7217), and Tom Alafat, instructor at the Leadership Institute (303-398-7209), discovered over many years of observing building industry leaders. In an online article,

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Microbranding

The concept of a brand for A/E firms has intrigued principals for years. It carries over from consumer merchandising into professional service firms the concept that products and companies are different from each other and that this difference is translated into a brand that becomes an unbeatable marketing tool. Frank Gehry may be said to be a brand, just like Motorola and Microsoft.

Now the concept has been refined into so-called microbranding. Microbranding, according to T. Scott Gross (Center Point, Tex.; 830-634-2122; e-mail: tscott@hctc.net.), is a little brand that sits on top of a larger national or even global brand. Microbrands are actually more powerful than their better-known host, writes Gross in *MicroBranding: Build a Powerful Personal Brand & Beat Your Competition* (Leading Authorities Press; Washington, D.C.; *Cost:* $24.95).

It's easy to confuse logo (what you see) with brand (what you think), Gross argues. Brand is nothing more that mental real estate you own in the minds of your prospective clients.

Microbranding builds on branding, according to the following premises:

- You already have a brand; you just may not know it.
- You don't need a globally recognized brand to compete.
- A microbrand is often more powerful than a big brand.
- Every enterprise can summon up multiple brands; you need to focus on the right one.
- Leading-edge technology is not necessary to project a microbrand.
- It's easier to destroy a brand than to build one (think Edsel, Enron).
- Building a microbrand can be done on a modest budget. *Source:* T. Scott Gross

Increasing Margins

Use This Formula to Value a Closely Held Design Firm

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for the ownership with after-tax savings from their salaries and bonuses.

The formula is: (3 x earnings before discretionary distributions) + (accrual-based book value — 15% net revenues).

In essence, the formula says that a firm is worth three times its earnings plus or minus the excess capital that is left in the business. The definition of earnings used in the formula is earnings before qualified retirement plan contributions, bonuses, interest income and expenses, and taxes. Adding back interest expense or reducing earnings by interest income provides a level of earnings not affected by the firm's capitalization. The impact of the firm's capitalization is determined by the second component of

the formula.

The formula assumes that a firm needs operating capital equal to 15% of net revenues. If the book value is *greater* than 15% of net revenues, your firm has excess capital and the excess capital is added to the firm's value. If the firm has a book value that is *less* than 15% of net revenues, then the firm has a capital deficit and the deficit is subtracted from the value. (For the reason why this is the assumed level of required operating capital, see below.) Net revenues vs. gross revenues are used in the formula because it is assumed that subconsultants are contracted on a pay-when-paid basis and only the net revenues need to be supported by operating capital.

The accrual-based book value is the shareholder equity as shown on the balance sheet of a C-corp. that has been prepared in compliance with Generally Accepted Accounting Principles (GAAP). In particular, the balance sheet must show an accrual for deferred taxes payable. Deferred taxes payable are frequently not accrued by design firms on their internal books.

Again, the formula uses the book value only to determine if the firm has retained excess capital and to recognize the value of this excess capital.

It depends on the entity. Many design firms are LLCs, sub S corporations, or partnerships. These entities do not recognize deferred taxes payable on their books—not because these taxes don't exist, but because they are the shareholder's liability and not the corporation's. For these entities, the deferred taxes that would be recognized if the entity were a C corp. are estimated and subtracted from the book value.

An estimate of deferred taxes payable is 35% x (A/R + WIP + prepaids – A/P – accrued expenses), where:

A/R = Accounts receivable
WIP = Work in progress
A/P = Accounts payable

If you have an income tax in your state, the federal tax rate of 35% is increased to the combined state and federal tax rate. The formula for this is state tax rate + 35% (1 — state tax rate).

The formula is relatively simple to calculate. When it is used in a stock purchase and sale agreement, the earnings used in the formula are often an average of the past two to three years, in order to mitigate the impact of one good or bad year. More meaningful is an estimate of the firm's sustainable future earnings.

The theory behind the formula is that a firm is worth a multiple of its profits to owners plus the cash that it has already earned and is still in the business. Firms distribute their earnings to owners, often as bonuses and, as such, the profits that remain after bonuses are not an accurate measure of the value of the business to its owners.

The profit before bonuses and other discretionary distributions is used as the measure of profitability. The multiple used to capitalize these earnings is adjusted to account for the fact that bonuses and other discretionary distributions need to be paid to employees who are not owners.

That is done both to reward and retain these employees as well as to fund the internal purchases of ownership. Bonuses paid to employees who are not owners are often the major source of wealth that allows employees to purchase their ownership

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positions over time. However, it is only the profits that flow to owners, over and above the bonus they would receive as employees that contribute to the firm's value.

The proof. Fifteen percent of net revenues is the needed level of operating capital and three is a proper multiple of earnings before discretionary distributions. *Here is the evidence:*

By using the fact that the median firm has 66.6 days receivables and gross revenues are 123.5% of net revenues (supplied by the *2001 A/E Financial Performance Survey;* PSMJ Resources, Inc.; Newton, Mass.; 617-965-0055), I have converted the data provided in this survey to express the balance sheet as a percentage of net revenues for the median firm (See Table 1, "Capital as Percentage of Net Revenues for the Average Design Firm.")

The median firm has operating capital equal to 14.9% of its net revenues. In my formula, I have rounded this to 15%.

Multiples of earnings. The earnings multiples of publicly held design firms is one source of information about what a proper multiple might be. In the end, however, the value of a design firm for an internal ownership transfer should be one that works in an internal ownership transfer scenario.

• **The publicly held firm.** Table 2, "Market P/Es of Publicly Traded Design Firms," shows three publicly held design firms and their market price/earnings ratio (P/E) as of the end of the year 2001. They show a P/E of 11.3 on after-tax earnings in 2001 and a P/E of 10.4 on the year-end P/Es for the past five years.

Table 1. Capital as Percentage of Net Revenues for the Average Design Firm

Assets	Percentage of Total Assets	Percentage of Gross Revenues	Percentage of Net Revenues
Cash	3.2%	1.1%	1.3%
Accounts receivable	55.5	18.2	22.5
Work in process	11.3	3.7	4.6
Other current assets	2.5	0.8	1.0
Fixed assets	10.6	3.5	4.3
Other assets	4.0	1.3	1.6
Total assets	100.0	32.9	40.6
Liabilities			
Accounts payable	10.0%	3.3%	4.1%
Deferred taxes	9.5	3.1	3.9
Line of credit	6.8	2.2	2.8
Current portion of long-term debt	2.6	0.9	1.1
Other current liabilities	10.3	3.4	4.2
Long-term debt (net)	5.9	1.9	2.4
Other liabilities	0.2	0.1	0.1
Equity	36.8	12.1	14.9
Total liabilities and equity	100.0	32.9	40.6
Individual items not additive			
Conversion factor (percentage of assets to percentage of gross revenues)			32.9%
Conversion factor (percentage of gross revenues to percentage of net revenues)			123.5

(Source: *PSMJ's 2001 A/E Financial Performance Survey*)

PSMJ's *2001 A/E Financial Performance Survey* also includes the income statement for the median firm (see Table 3, "Income Statement for the Average Firm"). It turns out that 11.3 times after-tax earnings is about equal to three times income before distribution earnings for closely held firms. Closely held firms and publicly held firms can be valued at about the same multiple of earnings.

Does it work? The final test is to demonstrate that the valuation of a firm using this formula can work in an internal ownership transfer scenario. Table 4, "Ownership Transfer Planning Model," shows a scenario over a 12-year timeframe for a firm with average capitalization of 15% of net revenues and an average profit of 13.2% of net revenues.

Each year, the firm contributes 2% of base wages to an employee stock ownership program (ESOP) and pays a performance bonus of 33% of operating income. This leaves 43% of operating

Table 3. Income Statement for the Average Firm

		P/E	Firm Value
Annual gross revenues	123.5%		
Direct project expenses	24.8%		
Net revenues	100.0%		
Direct labor costs	34.5%		
Contribution	64.4%		
Overhead	51.7%		
Operation profit (before incentives/bonuses)	12.4%	3.0	37.1%
Incentives/bonus distributions	5.3%		
Profit before taxes	4.7%		
Taxes	1.5%		
Net income	3.0%	11.31	34.4%

(Source: *PSMJ 2001 A/E Financial Performance Survey*)

Table 2. Market P/Es of Publicly Traded Design Firms

	Keith Companies	ARCADIS	URS Corp.	Comparable Average
Weight	—		—	
Symbol	TKCI	ARCAF	URS	
Exchange	NASD	NASD	NYSE	
Sales: five-year growth rate	30.6%	14.3%	50.0%	
Revenue (millions)	$69.4	$494.6	$2,319.3	
Net income (millions)	$5.9	$20.0	$57.9	
Profit margin	8.4%	4.0%	2.5%	5.0%
Shares (millions)	7.31	20.28	18.26	
EPS	$0.84	$0.97	$2.40	
Market capitalization (millions)	$76.7	$179.4	$536.8	
Current P/E	12.53	9.16	12.25	11.31
Past five years P/E	9.97	9.44	11.90	10.44
Assets (millions)	$66	$258	$1,463	
Liabilities (millions)	$14	$146	$1,141	
Stockholders equity (millions)	$52	$112	$323	
Liabilities/equity	0.27	1.30	3.54	1.70
Effective tax rate	40.3%	34.6%	44.5%	39.8%
Return on equity	16.5%	18.9%	17.1%	17.5%
Ratio market/book	1.5	1.6	1.7	1.6

(Source: Hall & Co.)

Table 4. Ownership Transfer Planning Model

Design Firm ($000)

Performance variables

Book value as percentage of net revenues	**15.0%**
Operating income	**13.2%**
Growth	**10.0%**
Labor multiplier	**2.9**
Utilization	**63.0%**
Tax rate	**40.0%**
Interest on debt	**10.0%**

Income statement

Income statement		**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Gross revenues	123.5%	$1,235	$1,359	$1,494	$1,644	1,808	$1,989	$2,188	$2,407	$2,647	$2,912	$3,203	$3,524
Reimbursables & sub expense		235	259	284	313	344	378	416	458	504	554	610	670
Net revenues	100.0%	1,000	1,100	1,210	1,331	1,464	1,611	1,772	1,949	2,144	2,358	2,594	2,853
Direct labor		345	379	417	459	505	555	611	672	739	813	894	984
Overhead		523	575	633	696	786	843	927	1,020	1,121	1,234	1,357	1,493
Operating income		132	145	160	176	193	213	234	257	283	311	342	377
ESOP (as % of payroll)	**2.0%**	11	12	13	15	16	18	19	21	23	26	28	31
Profit before bonus		121	133	146	161	177	195	214	236	259	285	314	345
Payroll tax on bonuses		7	8	8	9	10	11	12	13	15	16	18	20
Equity bonus	**43%**	51	57	62	68	75	83	91	100	110	121	133	147
Performance bonus	**33%**	40	44	48	53	58	64	71	78	86	94	104	114
Income after bonuses		23	25	28	30	33	37	40	44	49	54	59	65
Tax		9	10	11	12	13	15	16	18	20	22	24	26
Net income	1.4%	14	15	17	18	20	22	24	27	29	32	35	39
Dividends		0	0	0	0	0	0	0	0	0	0	0	0
Retained earnings	1.4%	14	15	17	18	20	22	24	27	29	32	35	39
Debt/equity ratio													
Debt	**6.3%**	63	69	76	84	92	101	112	123	135	149	163	180
Equity		150	165	182	200	220	242	266	293	322	354	390	429
Ratio		42.0%	42.0%	42.0%	42.0%	42.0%	41.9%	41.9%	41.9%	41.9%	41.9%	41.9%	41.9%
Firm valuation													
Book value of firm	**15.0%**	150	165	182	200	220	242	266	293	322	354	390	429
Value of firm for exchange		**396**	**436**	**479**	**527**	**580**	**638**	**702**	**772**	**849**	**934**	**1,027**	**1,130**
V = 3 x e													
E = earnings before ESOP contribution													
Return analysis													
Dividends		0	0	0	0	0	0	0	0	0	0	0	0
Equity bonus		51	57	62	68	75	83	91	100	110	121	133	147
Cash flow to shareholders		51	57	62	68	75	83	91	100	110	121	133	147
Tax	**27.5%**	14	16	17	19	21	23	25	28	30	33	37	40

After-tax cashflow to shareholders		37	41	45	50	55	60	66	73	80	88	97	106
Terminal value	1,130												
Total		37	41	45	50	55	60	66	73	80	88	97	1,236
Net present value	**397**												
Discount rate	22.0%												
1+discount rate	**1.220**												

Turnover analysis

Bonus portion

		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Performance bonus		40	44	48	53	58	64	71	78	86	94	104	114
Performance bonus to buyers	45%	18	20	22	24	26	29	32	35	39	42	47	51
After-tax performance bonus	73%	13	14	16	17	19	21	23	25	28	31	34	37
Percentage of performance bonus that buys	70%	9	10	11	12	13	15	16	18	20	22	24	26
Value of firm for exchange		396	436	479	527	580	638	702	772	849	934	1,027	1,130
Turnover	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	27.6%

ESOP portion

ESOP contribution		11	12	13	15	16	18	19	21	23	26	28	31
Value of firm for exchange		398	436	479	527	580	638	702	772	849	934	1,027	1,130
Turnover	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	33.2%

Dividend portion

		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Equity bonus		51	57	62	68	75	83	91	100	110	121	133	147
New owner's share		5.1%	10.6%	16.7%	23.3%	30.6%	38.5%	47.2%	56.7%	67.2%	78.6%	91.0%	
New owner's dividend		3	7	11	18	25	35	47	63	81	105	134	
After-tax new owner's dividend	73%		2	5	8	13	18	25	34	45	59	76	97
Value of firm for exchange	396	436	479	527	580	638	702	772	849	934	1,027	1,130	
Turnover	0.0%	0.5%	1.0%	1.6%	2.2%	2.9%	3.6%	4.4%	5.3%	6.3%	7.4%	8.6%	43.8%
Accumulated turnover	5.1%	10.6%	16.7%	23.3%	30.6%	38.5%	47.2%	56.7%	67.2%	78.6%	91.0%	104.7%	104.7%
Years to implement	12.0												
Estimated payroll		547	602	682	729	801	882	970	1,067	1,173	1,291	1,420	1,562

(Source: Hall & Co.)

income to be distributed to the owners. The firm still has enough retained earnings to support 10% growth and maintain the industry average debt to equity ratio of 42%.

The firm is valued at three times earnings. The firm's equity remains at 15% of net revenues, so there is no excess or deficit capital in the firm. The firm's value is supported by the bonus to owners, which provides a compounded annual return of 22% to owners.

Each year, it's assumed that 45% of the performance bonus goes to buyers and that 70% of those who are offered ownership actually purchase what they can afford after-tax. Given the valuation of the firm, 2.3% of the ownership can be transferred using this approach each year.

Each year, the ESOP invests the firm's contribution into the ownership and, as such, 2.8% can be transferred with this approach each year.

Finally, the new owners begin to accumulate ownership and receive a portion of the owner bonus, which they reinvest in more ownership. The model shows that after 12 years, 104.7% of the firm's ownership can be transferred and paid in full through this process.

In summary, a firm can use the formula provided in this article to develop a successful internal ownership transfer plan so long as the firm can maintain an average level of profitability and it offers shares annually to key employees. With the ESOP, the transfer can be completed in 12 years at a funding level of only 2% of base wages and the buyers receive a 22% compounded annual return on their investment in the company. **PR**

Mike Hall is president of Hall & Co. (Poulsbo, Wash.; 360-598-5011; e-mail: mike@aejob.com), a management consulting firm specializing in the A/E industry, founded in 1983.

Exercising Leadership

Three Leadership Styles: Which One Is Yours?

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Magnus and Alafat outline three styles of leadership: the manager leader, the visionary leader, and the change-agent leader. *So, which one are you?*

The manager leader. Manager leaders lead because they have a special ability to manage well. They have, as Magnus and Alafat see it, "an uncanny ability to set timelines and goals and to organize and monitor people, processes, systems, and resources."

"Life's naturally gifted administrators" is what these leaders are called in the Myers Briggs Temperament Inventory, a personality assessment tool.

The manager leader is distinguished by these character traits:

- Identifying what needs to be done once a direction is chosen, then obtaining resources and people to realize that direction.
- Deciding whether, given the resources, it makes sense to move forward at a given time.
- In a firm with a large workload and growing backlog, deciding how to manage the hectic activity without losing sight of the firm's long-term direction.
- In lieu of displaying a charismatic presence, working day-to-day to arouse confidence that the firm is moving forward efficiently.
- Administering operations without stifling creativity.
- Resigning oneself to the chance that popularity probably won't come their way, even though respect will.

The visionary leader. Visionary leaders have a way of seeing the big picture of which the firm is