
MASB Standards Project

How Useful are Brand Valuation Methods?

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**Marketing Accountability Standards Board
of the Marketing Accountability Foundation**



Seminar for Marketing and Market Research
University of Cologne

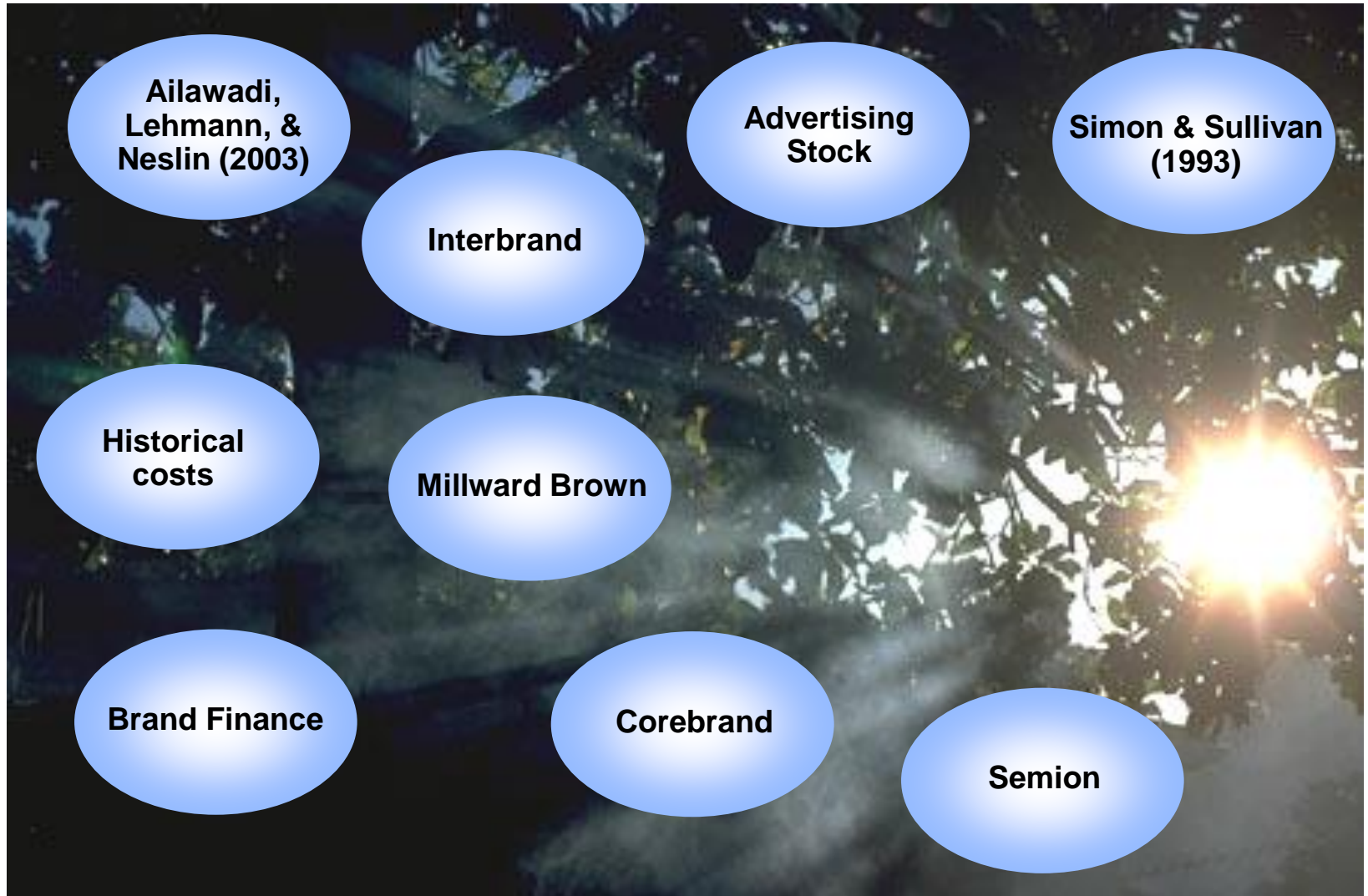
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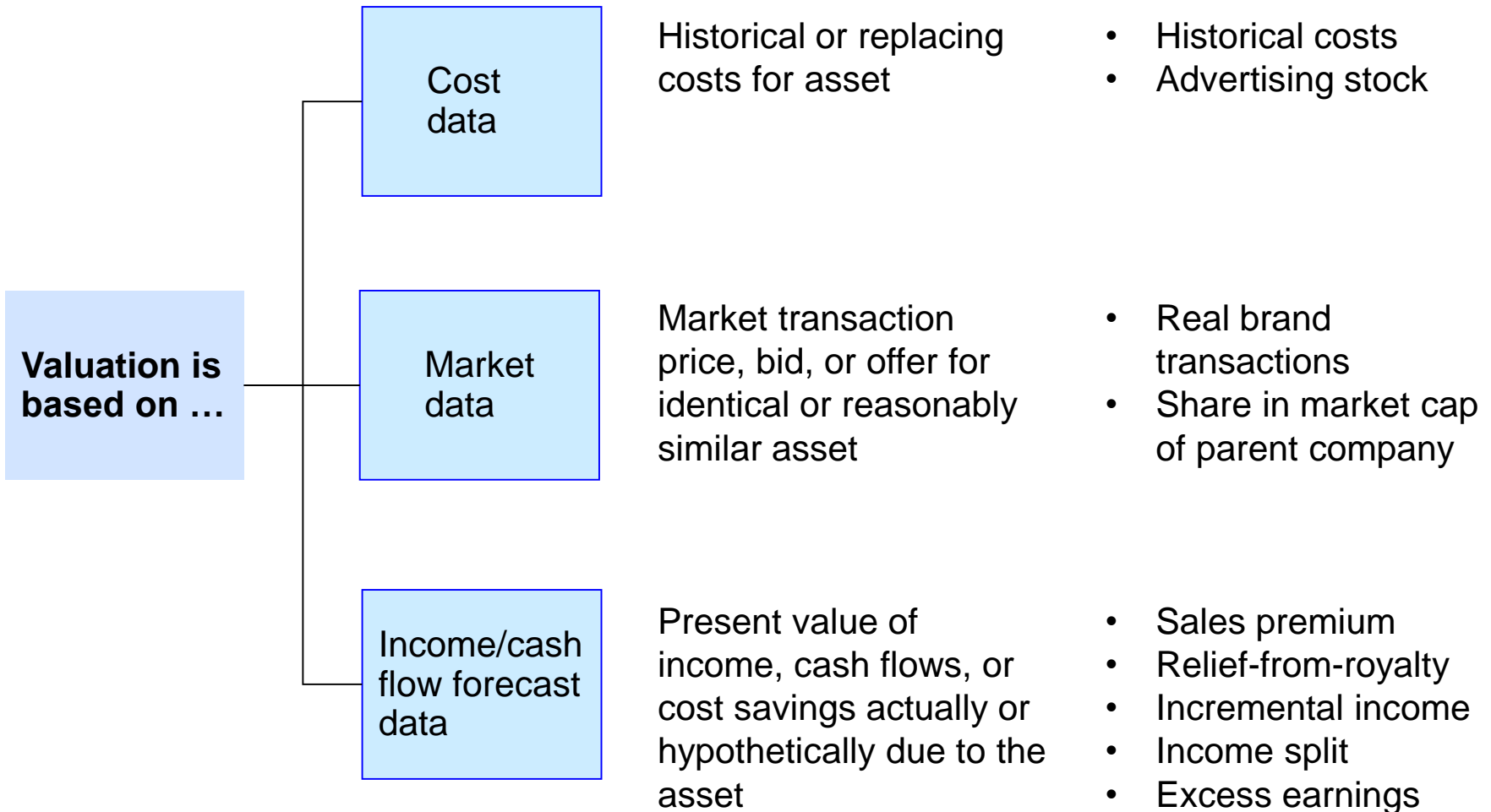
• What is the true value of a brand?

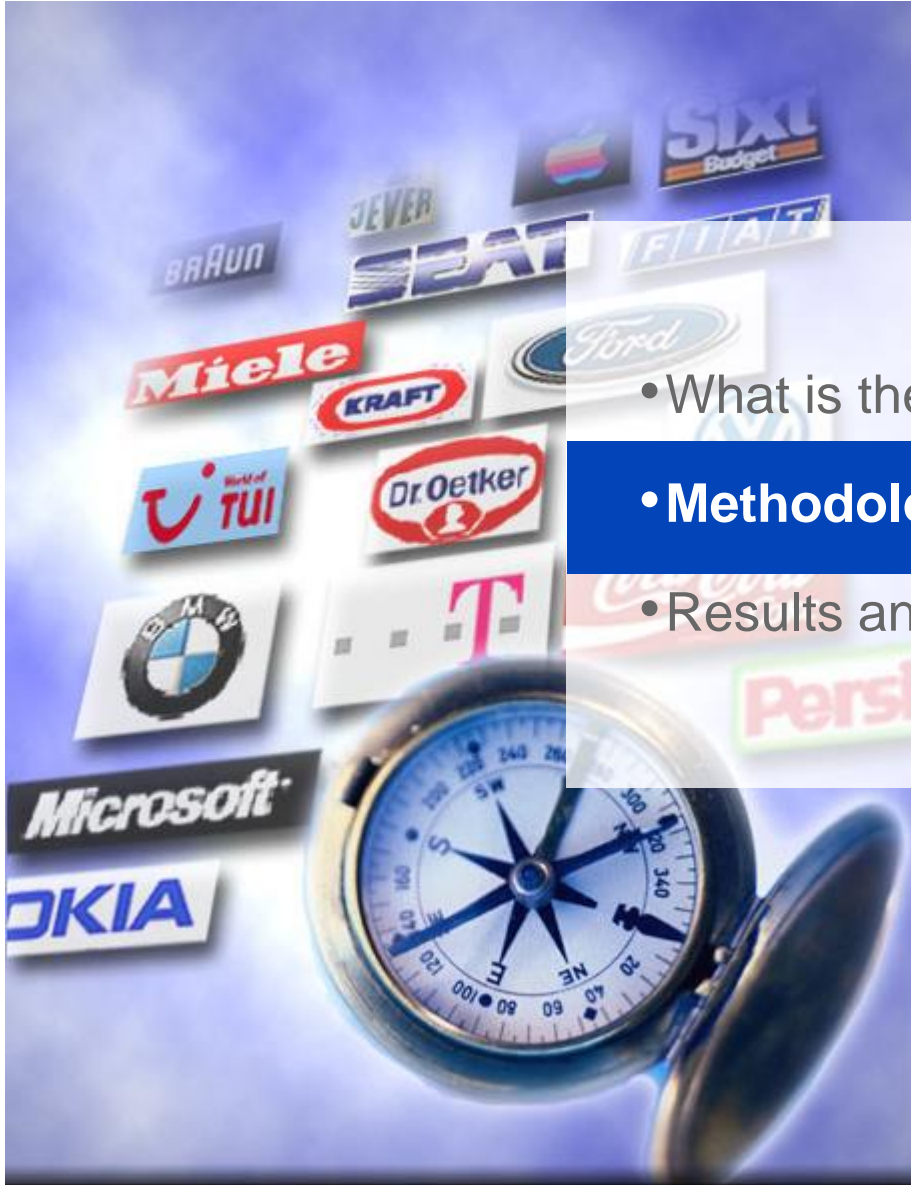
- Methodology and data
- Results and conclusions

There is a jungle of brand valuation models ...



Brand valuation philosophies





- What is the true value of a brand?

- **Methodology and data**

- Results and conclusions

Scope of study and analysis requirements

Scope of validation study

- 36,992 financial brand equities from 1990-2011
- 9 different brand valuation methods: 2 cost-based, 2 market-based, 5 income/DCF-based
- 4,879 brands
- 89 countries (brand origin)
- More than 70 industries

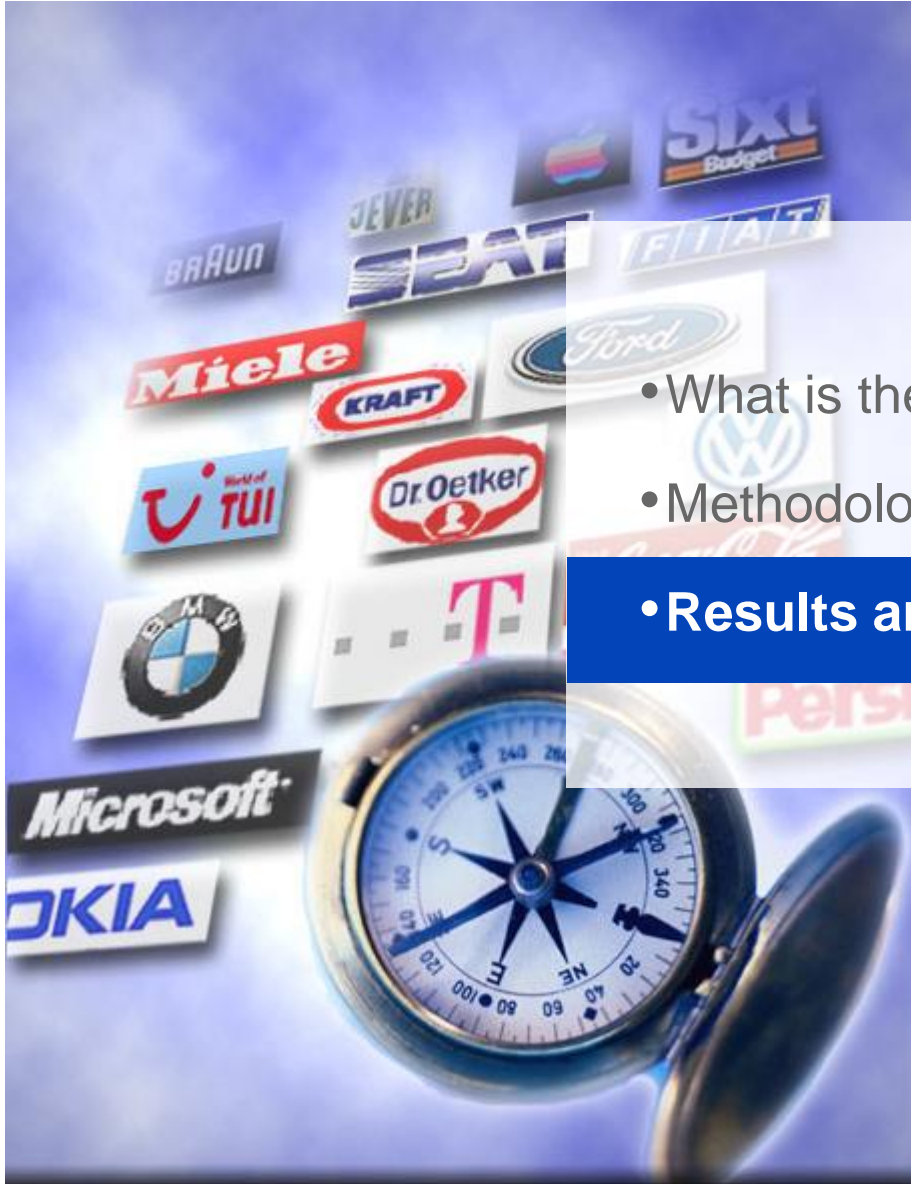
Requirements for analysis

- Global brand value, not single countries
- Foreign currency translated into US-Dollar at average exchange rate across year
- Valuation of single brands, not portfolios of brands

Test statistics and suggested thresholds

	<u>Test method</u>	<u>Suggested threshold</u>
Reliability/Stability	<ul style="list-style-type: none"> • Test-retest correlation • Proportion of time variance 	$r \geq .90$ Cross-sectional / time variance ≥ 3
Convergent validity	<ul style="list-style-type: none"> • Correlation analysis • Co-integration test* 	Proportion ($\geq 75\%$) and average of significant correlations (≥ 50) $ADF > t$
Discriminant validity	<ul style="list-style-type: none"> • Correlation analysis • Co-integration test* 	$r < .30$ $ADF < t$
Nomological validity	<ul style="list-style-type: none"> • Correlation analysis • Co-integration test* • Granger causality 	Proportion ($\geq 75\%$) and average of significant correlations ($\geq .40$) $ADF > t$ # of expected / # of reverse causality relations ≥ 2
Predictive validity	<ul style="list-style-type: none"> • Stock market response model 	Significant ($t < 1.96$) stock return response coefficient

* Only necessary if both series contain a unit root, i.e. are non-stationary



- What is the true value of a brand?
- Methodology and data
- **Results and conclusions**

Network of relationships (nomological validity)

Antecedents

Period t-1

Advertising expenditures

Selling & general administration expenditures

Customer-based brand equity

Period t

Brand value measure

Consequences

Period t+1

Sales

Profit

Firm market capitalization

Price-to-book value

We test for both 'strength of association' and 'direction of causality'

Summary of test results

Validation criteria	Reliability/ stability		Convergent validity	Discriminant validity	Nomological Validity		Predictive validity
Test method(s)	Test-retest reliability	Variance decomposition	Correlation / Co-integration test	Correlation / Co-integration test	Correlation / Co-integration test	Granger causality test	Stock return response model (t-test)
Required threshold	$r > .90$	<i>Cross-sectional variance / time variance > 3</i>	$r > .50$ $ADF > t$	$r < .30$ $ADF < t$	$r > .40$ $ADF > t$	<i># of expected / # of reverse causalities > 2</i>	$t > 1.96$
Cost-based methods							
Ad-stock model	✓	✓	✓	✓	✓	×	×
Capitalized costs	✓	×	×	✓	✓	×	×
Market-based methods							
Simon and Sullivan (1993)	✓	✓	✓	✓	✓	×	×
Corebrand	✓	✓	✓	×	✓	×	✓
Income/DCF forecast-based methods							
<i>Future-oriented</i>							
Interbrand	✓	✓	×	✓	×	×	✓
Millward Brown	✓	✓	×	×	×	×	×
Semion	✓	✓	×	✓	✓	×	✓
Brand Finance	✓	✓	✓	×	✓	×	×
<i>Current period-oriented</i>							
Ailawadi, Lehmann, and Neslin (2003)	✓	✓	×	✓	×	×	×
Across all methods	All	8 of 9	4 of 9	6 of 9	6 of 9	0 of 9	3 of 9

Notes: ✓passed, ×□not passed

Conclusions (I/II)

- **Methods produce reliable and stable results**
- **Measurements converge within its class, but not necessarily across classes**
- **Overall, measurements discriminate from other concepts**
- **Nomological validity cannot be established for any method**
- **Evidence of predictive validity with respect to investor behavior only for 3 methods**

Conclusions (II/II)

- **No “perfect” brand valuation method exists**
- **It is important to understand the specific assumptions in valuation philosophies**
- **Market-based models appear to perform best, but the theoretically inferior cost-based approach also does surprisingly well**
- **Major issues associated with Millward Brown model (not a single validity test threshold passed)**
- **Validation based on correlational statistics, not comparison of absolute brand values**



Thank-you!

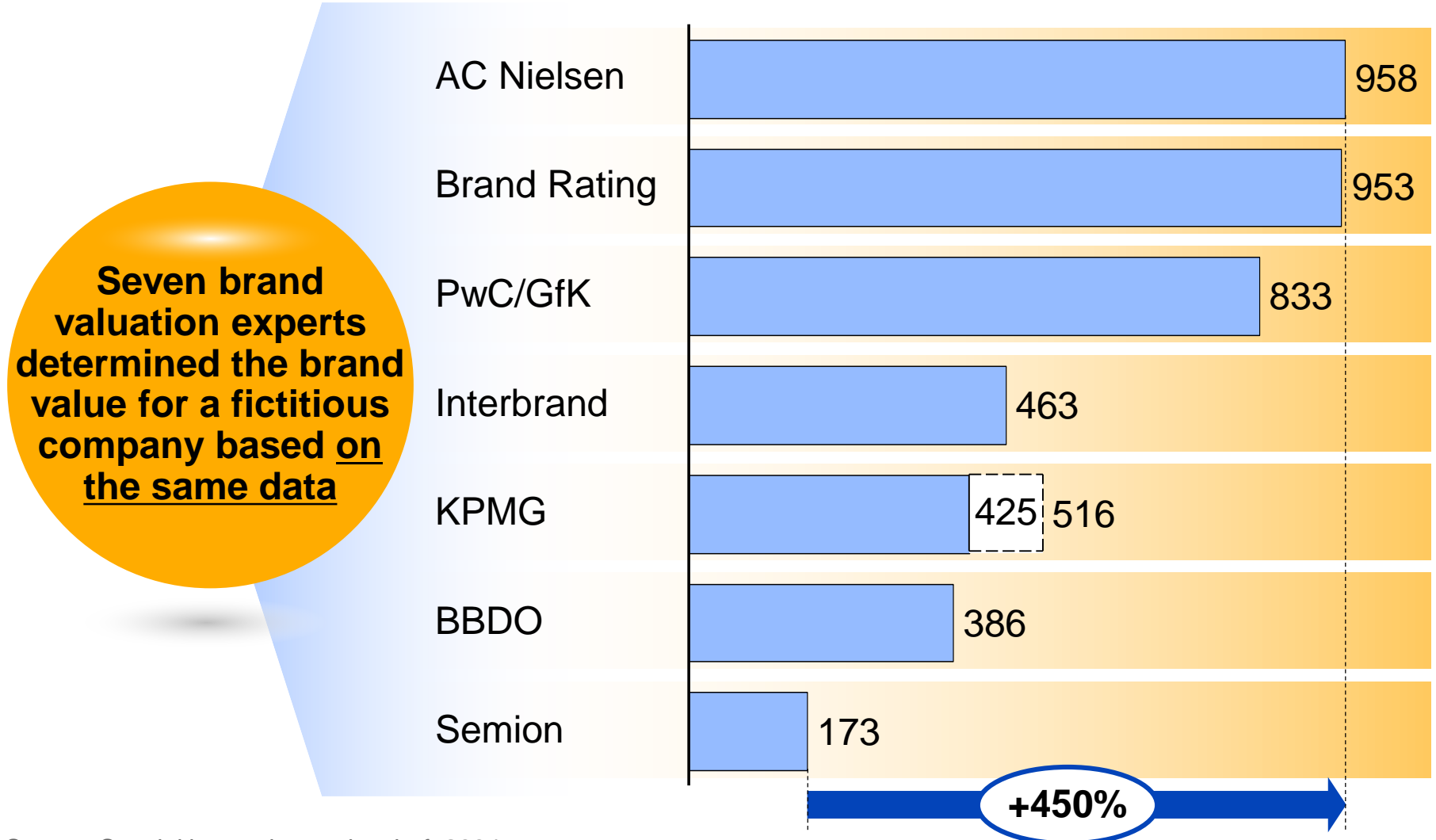


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... which do not converge at all

BRAND VALUE

EUR millions



Source: Special issue absatzwirtschaft 2004

Descriptive statistics

	Period	Brands	Observations	Mean value in US M\$	Mean no. of observations per brand	Mean no. of joint observations ¹⁾	Common unit root ²⁾
Cost-based methods							
Ad-stock model	1990-2010	186	2,458	2,398.10	13.22	818.36	No
Historical costs	1990-2010	186	2,458	5,057.29	13.22	818.36	Yes
Market-based method:							
Simon and Sullivan (1993)	1992-2011	438	5,571	5,434.86	12.72	912.50	Yes
Corebrand	2002-2011	672	3,979	2,448.17	5.92	981.75	No
Income/DCF forecast- based methods							
<i>Future-oriented</i>							
Interbrand	1992-2011	1,027	3,841	4,861.55	3.74	556.63	No
Millward Brown	2006-2011	324	1,175	10,946.31	3.63	304.50	No
Semion	1997-2001	78	774	5,200.43	9.92	58.38	No
Brand Finance	2006-2011	2,752	5,950	2,620.10	2.16	521.13	No
<i>Current period-oriented</i>							
Ailawadi, Lehmann, and Neslin (2003)	1997-2011	876	10,786	2,541.99	12.31	1380.63	No
Across all methods	1990-2011	3,879	36,992	3,701.12	5.66	705.81	--

¹⁾ Validation tests are only applied if the number of observations is at least 50.

²⁾ Unit root is not rejected for revenues and SG&A ($p > .10$).

Results on reliability and stability

	Test-retest correlation		Variance decomposition		
	Period t with period $t-1$	Within period t	Ratio of cross- sectional to time variance	Cross- sectional variance	Time variance
Required threshold	$\geq .500$	$\geq .500$	≥ 3.00	$\geq 75.0\%$	$\leq 25.0\%$
Cost-based methods					
Ad-stock model	.996	n.a.	3.26	76.5 %	23.5 %
Historical costs	.998	n.a.	1.64	62.1 %	37.9 %
Market-based methods					
Simon and Sullivan (1993)	.993	n.a.	7.70	88.5 %	11.5 %
Corebrand	.964	n.a.	10.49	91.3 %	8.7 %
Income/DCF forecast- based methods					
<i>Future-oriented</i>					
Interbrand	.990	.983	8.35	89.3 %	1.7 %
Millward Brown	.952	.997	5.76	85.2 %	14.8 %
Semion	.987	.970	14.63	93.6 %	6.4 %
Brand Finance	.942	.984	13.08	92.9 %	7.1 %
<i>Current period-oriented</i>					
Ailawadi, Lehmann, and Neslin (2003)	.901	n.a.	3.12	76.1 %	23.9 %

Notes: All correlation coefficients are highly significant at $p < .01$; n.a. = not applicable since updated or corrected values have were not available but may exist.

Results on convergent validity

	Across all methods		Within valuation category
	No. of significant correlations (p < .05)	Average correlation (only p < .05)	Average correlation (only p < .05)
<i>Required thresholds</i>	≥ 6 (75 %) of all relationships	≥ .50	≥ .50
Cost-based methods			
Ad-stock model	6	.554	.928
Historical costs	6	.462 ¹⁾	.928
Market-based methods			
Simon and Sullivan (1993)	7	.607 ¹⁾	.693
Corebrand	7	.583	.693
Income/DCF forecast-based methods			
<i>Future-oriented</i>			
Interbrand	8	.494	.660
Millward Brown	4	.540	.543
Semion	5 ²⁾	.442 ²⁾	.401
Brand Finance	8	.520	.625
<i>Current period-oriented</i>			
Ailawadi, Lehmann, and Neslin (2003)	7	.397	n.a

Notes: n.a. = not applicable since only one current-period income model

¹⁾ Correlation between the historical costs model and Simon and Sullivan (1993) model not included due to non-stationary time-series. Series are co-integrated ($ADF = 38.10$; $p < .01$).

²⁾ Only five other methods included due to insufficient number of joint observations.

Across-method correlation with available M&A transaction values
 $r = .820^{***}$ (N = 102)

Results on discriminant validity

	Average correlation across methods	American Customer Satisfaction Index	Fortune Corporate Reputation Index
<i>Required threshold</i>		≤ .300	≤ .300
<i>Cost-based methods</i>			
Ad-stock model	.554	.219	.047 ^{NS}
Historical costs	.462	.258	.007 ^{NS}
<i>Market-based methods</i>			
Simon and Sullivan (1993)	.607	.061 ^{NS}	.051 ^{NS}
Corebrand	.583	.101	.339
<i>Income/DCF forecast- based methods</i>			
<i>Future-oriented</i>			
Interbrand	.494	-.267	.251
Millward Brown	.540	-.078 ^{NS}	.310
Semion	.442	n.a.	-.073 ^{NS}
Brand Finance	.520	.002 ^{NS}	.345
<i>Current period-oriented</i>			
Ailawadi, Lehmann, and Neslin (2003)	.397	.016 ^{NS}	.073

Notes: NS = not significant ($p > .05$; two-sided t-test); n.a. = not applicable since less than 50 observations available.

Results on nomological Validity (I/II): Strength of associations

	Three antecedents (t-1)		Four consequences (t+1)	
	No. of significant correlations (p < .05)	Average correlation (only p < .05)	No. of significant correlations (p < .05)	Average correlation (only p < .05)
<i>Required thresholds</i>	≥ 2	≥ .400	≥ 3	≥ .400
Cost-based methods		⊗ .634		⊗ .430
Ad-stock model	2	.653	3	.456
Historical costs	2	.614 ¹⁾	3	.403 ¹⁾
Market-based methods		⊗ .519		⊗ .584
Simon and Sullivan (1993)	2	.624 ¹⁾	3	.588 ¹⁾
Corebrand	3	.414	4	.579
Income/DCF forecast-based methods		⊗ <u>.384</u>		⊗ <u>.491</u>
<i>Future-oriented</i>		⊗ .413		⊗ .431
Interbrand	3	.359	4	.407
Millward Brown	3	.235	4	.277
Semion	3	.627	4	.449
Brand Finance	3	.431	3	.591
<i>Current period-oriented</i>		⊗ n.a.		⊗ n.a.
Ailawadi, Lehmann and Neslin (2003)	3	.266	3	.732
Across all methods		.469		.498

Notes: n.a. = not applicable since only one current-period based income model.

¹⁾ Panel co-integration test (Kao 1999) indicates that series for Simon and Sullivan (1993) and historical cost model are co-integrated.

Results on nomological Validity (II/II): Direction of causality

	# of expected / # of reverse Granger-causal relationships		# of expected Granger- causal relationships		# of reverse Granger-causal relationships	
	Antecedents	Consequences	Antecedents	Consequences	Antecedents	Consequences
<i>Required thresholds</i>	≥ 2	≥ 2				
<i>Cost-based methods</i>						
Ad-stock model	.75	.64	6	7	8	11
Historical costs	.50	1.00	3	10	6	10
<i>Market-based methods</i>						
Simon and Sullivan (1993)	1.00	.92	7	11	7	12
Corebrand	.50	.80	6	8	12	10
<i>Income/DCF forecast- based models</i>						
<i>Future-oriented</i>						
Interbrand	1.33	.64	4	7	3	11
Millward Brown	.00	1.16	0	7	3	6
Semion	.80	1.20	4	12	5	10
Brand Finance	1.00	.91	6	10	6	11
<i>Current period-oriented</i>						
Ailawadi, Lehmann and Neslin (2003)	.60	1.22	6	11	10	9
<i>Across all methods</i>	<i>.70</i>	<i>.92</i>	<i>42</i>	<i>83</i>	<i>60</i>	<i>90</i>

Results on predictive validity: Stock return response model

	Ad-stock model	Historical costs	Simon & Sullivan (1993)	Corebrand	Interbrand	Millward Brown	Semion	Brand Finance	Ailawadi, Lehmann & Neslin (2003)
Immediate stock return response									
UΔROA ¹⁾	6.095 (.990)	6.042 (.990)	5.315 (.395)	3.114 (.763)	2.637 (1.262)	4.595 ^{NS} (2.895)	-1.880 ^{NS} (2.092)	5.649 (1.497)	9.853 (.512)
UΔBV ¹⁾	-0.003 ^{NS} (.019)	-0.017 ^{NS} (.015)	-0.008 ^{NS} (.455)	.006 (.003)	.007 (.004)	.002 ^{NS} (.002)	.032 (.014)	.004 ^{NS} (.005)	.000 ^{NS} (.001)
F-Value	6.41	6.49	16.33	3.38	2.56	4.25	4.19	6.67	26.96
Obs.	1,759	1,759	4,215	2,736	1,099	380	575	1,520	8,005
Future stock return response within 1 month after announcement									
UΔBV ¹⁾	-0.083 ^{NS} (.071)	-0.083 ^{NS} (.054)	-0.001 ^{NS} (.017)	.014 ^{NS} (.011)	-0.012 ^{NS} (.013)	-0.015 ^{NS} (.008)	-0.025 ^{NS} (.054)	.003 ^{NS} (.018)	.017 (.005)
F-Value	2.69	2.75	2.92	4.91	2.64	7.36	1.51 ^{NS}	4.63	4.08
Obs.	1,802	1,802	4,226	2,738	1,101	380	576	1,519	8,029
Future stock return response within 5 months after announcement									
UΔBV ¹⁾	-0.500 ^{NS} (.305)	-.493 (.232)	-0.033 ^{NS} (.068)	.144 (.043)	.000 ^{NS} (.005)	.000 ^{NS} (.004)	.003 ^{NS} (.021)	-0.007 ^{NS} (.007)	-0.003 ^{NS} (.021)
F-Value	3.25	3.35	5.87	3.21	4.79	1.53 ^{NS}	5.94	6.96	5.94
Obs.	1,802	1,802	4,420	2,736	1,101	380	576	1515	8,013
Future stock return response within 11 months after announcement									
UΔBV ¹⁾	-.446 (.019)	-.045 (.015)	-.009 (.005)	.011 (.003)	-0.003 ^{NS} (.004)	-0.001 ^{NS} (.002)	-0.005 ^{NS} (.014)	-0.003 ^{NS} (.004)	.000 ^{NS} (0.001)
F-Value	3.23	3.46	5.75	2.12	3.14	2.05 ^{NS}	4.70	5.30	8.91
Obs.	1,799	1,799	4,206	2,734	1101	380	576	1,502	7,973

Notes: Standard error in parentheses; **Bold** = significant; NS = not significant ($p < .05$; one-sided t-test); all F-values are significant except denoted as NS ($p < .05$); coefficients for the constant, yearly dummies, and unexpected profitability from the 1, 5, and 11 months future stock return estimation equations are not reported in the table.¹⁾ For reading convenience we multiply coefficients by 10,000.