The Impact of IFRS Goodwill Reporting on Financial Analysts' Equity Valuation Judgements

Some Empirical Evidence

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Background

- Financial analysts rely on accounting information when they evaluate the equity valuation effects of corporate acquisitions.

- The accounting for business combinations was subject to major changes in the early 2000s, under both U.S. GAAP and IFRS.

- Goodwill is not amortised but periodically tested for impairment.

- Weak recognition criteria for identifiable intangible assets in the acquisition analysis – patents, customer relationships, brands etc. Intangibles assets with a limited useful life are amortised.

Objective - contributions

- This paper investigates how financial analysts' equity valuation judgements are affected by preparers' allocation of acquisition premiums to identifiable intangible assets versus goodwill.

- Intended contributions:

  – Use of an experimental approach to empirically evaluate whether the new accounting regime enhance the decision usefulness of financial statements.
    - Inconclusive results in empirical-archival research.
    - Lack of behavioral research.
    - Prior experimental study by Hopkins et al. (2000) pertaining to the old accounting regime under U.S. GAAP as applied in the late 1990s.
    - Our study evaluates the new regime under IFRS, for a recent time period (2011).

  – Use of a two-stage approach based on how analysts work in practice: Initial exploiting of earnings information followed by more sophisticated analysis (DCF valuation).

  – Innovative feature of the study: supplemental experiment with the actual analysts following the case company.

Accounting choice (1)

- Distinct vs. judgemental choice – Fields et al. (2001)

- Why do analysts benefit from the recognition of identifiable intangible assets?

  - Users can to a greater extent distinguish identifiable intangible assets from goodwill

  - Managers can provide more private information about the quality of the assets acquired through the business combination.

- A study by Shalev (2009) finds that preparers who allocate the acquisition premium to a lesser extent to identifiable intangible assets are less transparent in their financial reporting. Shalev argues that they downplay ‘bad news’.

Accounting choice (2)

- Potential drawbacks of recognising identifiable intangible assets:
  - Increased information uncertainty (unverifiable amounts)
  - Managers may behave opportunistically in order to increase earnings in a short-term perspective.
- Shalev et al. (2013) find that CEOs whose compensation packages rely more on earnings-based components are more likely to over-allocate the purchase price to goodwill.

How do financial analysts respond to company information? The short-term response…

- Barker (1998; 1999; 2000) conducted field research on how financial analysts and fund managers use financial information for equity valuation purposes. Barker's results suggest that:
  - There is a need to respond quickly to news, especially with regard to the earnings impact. Earnings adjustments were done in a superficial way. Speed of reaction was essential.
  - Sell-side analysts were only interested in earnings to the extent they were a medium for income generation to the firm. When the earnings news had been exploited, the subsequent interest in earnings was low.
- More recent field studies by Brown et al. (2015) and Abhayawansa et al. (2015) point at the high importance placed by analysts on earnings-related information and earnings-based multiples in connection with their short-term responses to clients in connection with companies' announcements of financial information.

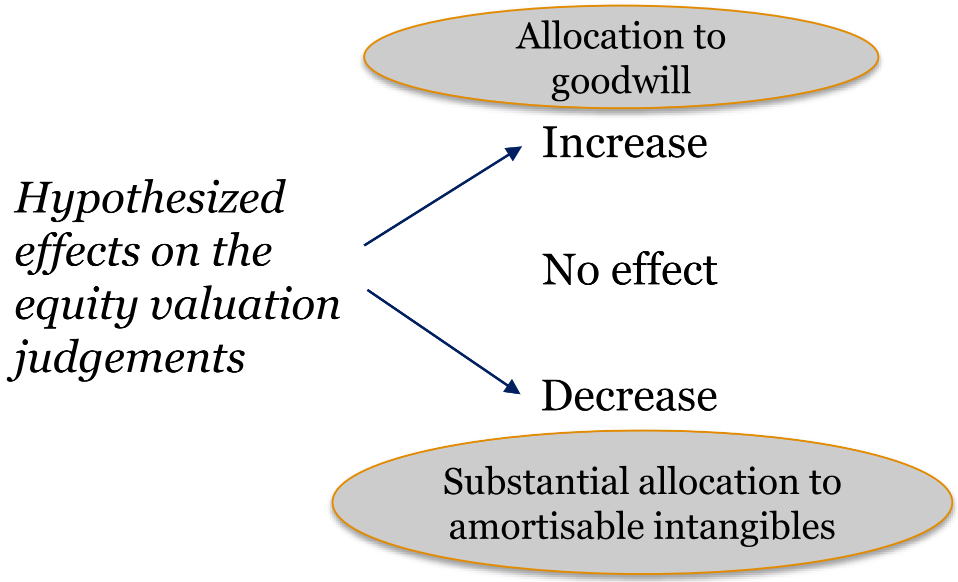
Hopkins et al. (2000)

- Experimental study of 113 financial analysts where the accounting method was manipulated.
- Accounting methods evaluated (U.S. GAAP):
    1. Pooling of interests
    2. Purchase with the accounting acquisition premium expensed as in-process research and development
    3. Purchase with the accounting acquisition premium capitalised as goodwill and amortised over six years
- Cash flows were identical across all three alternatives but EPS numbers varied.
- Analysts' stock price judgements were reported to be lower for method 3 compared to methods 1 and 2.

Stage 1: Hypothesis 1

- **H1:** Financial analysts will predict a higher value for a company's outstanding common stock when the company allocates the acquisition premium to goodwill than when the company allocates a substantial amount of the acquisition premium to amortisable intangible assets.

Earnings numbers



How do analysts use financial information for equity valuation purposes? A long-term response?

- Key textbooks on equity valuation advocate the use of sophisticated multi-period (i.e., based on long-term forecasts) present value models.

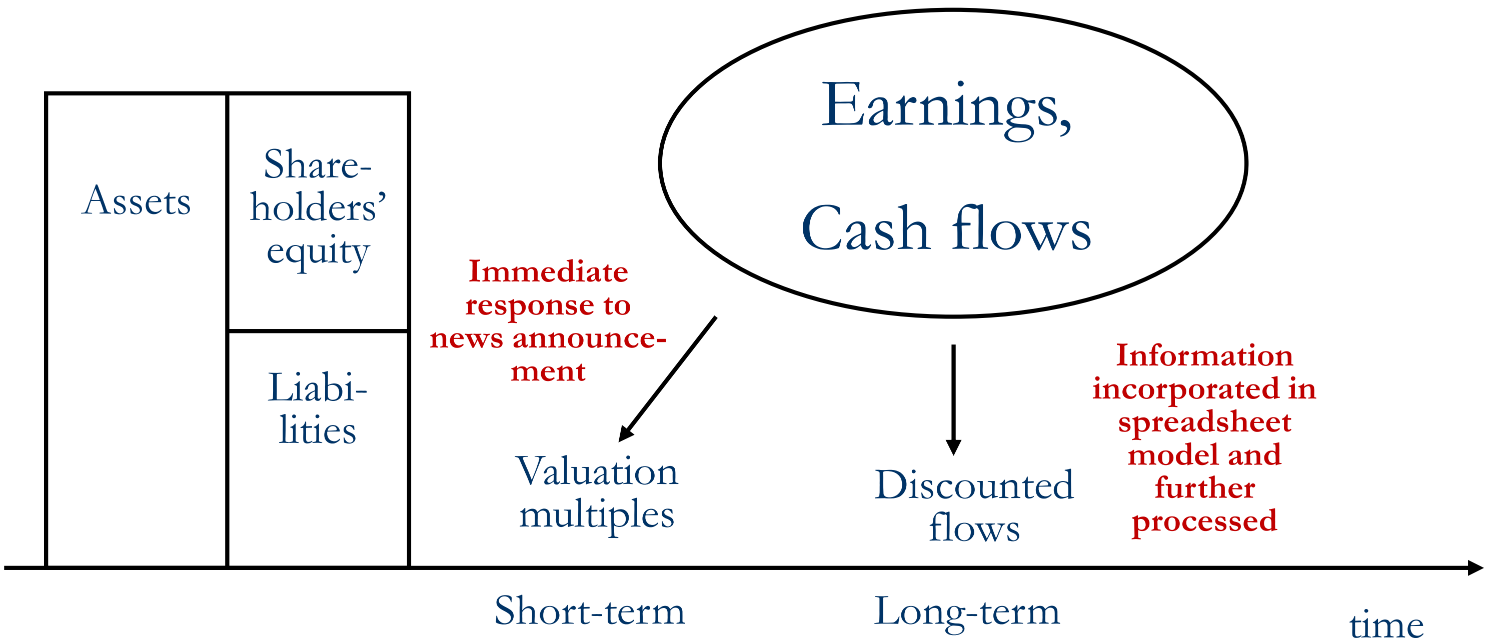
- In contrast, empirical studies based on content analysis of analyst reports and interviews suggest that analysts primarily rely on price-to-earnings (P/E) ratios and similar valuation multiples.

- The results of Barker (1998; 1999; 2000) suggest that valuation multiples are used as a point of departure from which fundamental analysis is conducted.

- Many empirical studies refer to the combination of valuation multiples and sophisticated models, most commonly discounted cash flow (DCF) and P/E valuation.

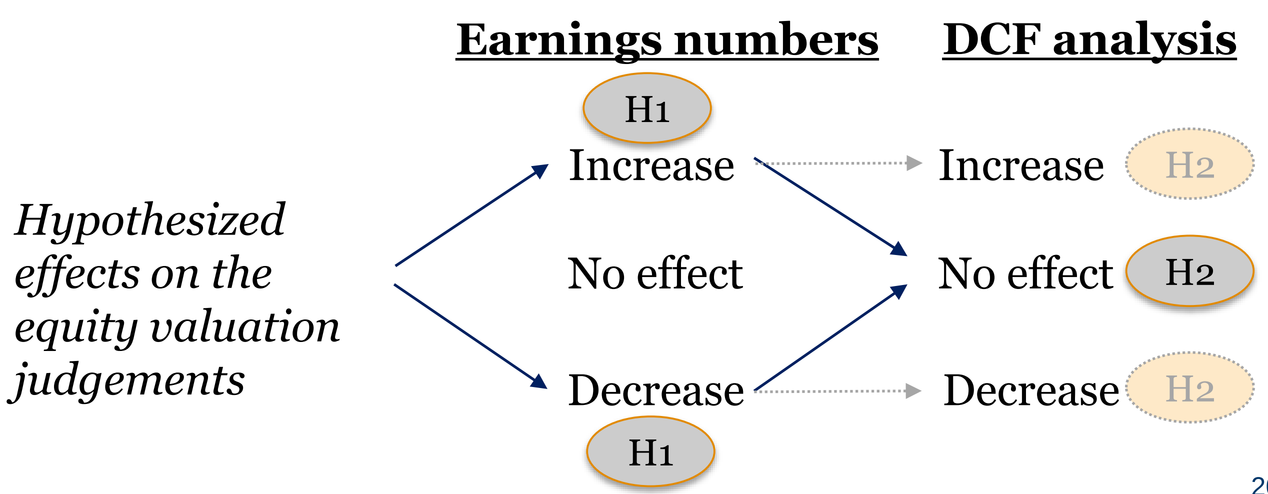
Stages 1 and 2

Financial analysts use accounting information as a basis for forecasts of valuation attributes



Stage 2: Hypothesis 2

- **H2:** In response to additional information about discounted cash flow valuation that is inconsistent with previously received information, there will be no differences in the equity valuation judgements among the financial analysts regardless of whether the acquisition premium in the previously studied takeover announcement had been allocated to goodwill or to amortisable identifiable intangible assets.



Experimental design (1)

One between-subjects factor:
Acquisition premium allocation

Allocation alternatives

Alt 1: GO (n=21):
Acquisition premium allocated to goodwill only, which is not impaired during the forecast period

⇨ P/E-ratio decreases

⇨ DCF unchanged

Alt 2: IIR (n=19):
A substantial part of the acquisition premium is recognised as identifiable intangibles, which are amortised

⇨ P/E-ratio increases

⇨ DCF unchanged

Experimental design (2)

One within-subjects factor: Information provided

Stage 1 (S1): Basic information → **Stage 2 (S2): Additional information**

	Acquirer: Pre-acquisition	Target	Acquirer: Post-acquisition
Balance Sheet	S1	S1	S1
Profit/Loss Statement	S1	S1	S1
Cash Flow Statement	S1	S1	S1
Multipes: P/E ratios *reported and adjusted*	S1		S1
Multiple: EV/Sales	S2		S2
Share Information	S1	S1	S1
DCF Analysis	S2		S2

Materials and participants

- Web-based experiment (press release, financial information, judgement)
- Materials based on Ericsson (listed firm, IFRS) who acquires fictitious firm at the end of 2010.
- Study conducted in three sessions (February –April 2011).
- Participants:
  - Financial analysts who completed the task as a part of an education in finance and accounting (module from financial analyst diploma program)
  - 40 analysts, average experience somewhat above 4 years.
  - The participants had not previously conducted fundamental analysis of the Ericsson share.

Press release

Press Release
Balance Sheet
P/L Statement
Cash Flow
Multiples
Share Info
Decision

Ericsson announces cash offer to acquire XX Corp.

Ericsson (NASDAQ:ERIC) today announces a voluntary public cash offer to acquire XX Corporation ("XX") for $33.60 in cash per common stock (the "cash offer"), valuing the company at approximately $15.0bn (SEK 100.4bn). The cash offer represents a premium of 36 percent to the one month average share price of $24.70. With the acquisition Ericsson further strengthens its global position as a leading supplier and business partner in communications networks for fixed and mobile operators.

- Ericsson offers $33.60 per common stock in cash.
- Total enterprise value of SEK 111.3 billion.
- EPS accretive from 2011 onwards. ***[EPS accretive from 2011 onwards, excluding amortization of intangibles estimated at SEK 3.5-4.0 billion per year.]***

XX Corporation is an applications and solutions developer with services capabilities. XX group reported maintained profitability in 2010 on the back of its cost advantage, technological edge and financial strength.

Positive impact on EPS from 2011 onwards, excluding synergy effects and integration & transaction costs. ***[Positive impact on EPS from 2011 onwards, excluding synergy effects and integration & transaction costs and amortization of intangibles estimated at SEK 3.5-4.0 billion per year.]*** Estimated synergies of 2.8bn per year from 2013 onwards (1.5bn in 2011, 2.4bn in 2012). Estimated integration & transaction costs of 1.5bn in 2011, 0.8bn in 2012 and 0.4bn in 2013.

The acquisition will be conducted by means of a public voluntary cash offer to the XX shareholders, valuing the share capital at SEK 100.4 billion. Enterprise value for XX is SEK 111.3 billion after adjusting for the net debt position of SEK 10.9 billion (SEK/USD=6.7).

Ericsson will finance the offer by increasing interest-bearing debt and by reducing liquid assets. Net debt gearing is expected to increase from -35% to 41%. Current interest received on the liquid assets is 1.9%. The interest rate on new debt is estimated at 4.7%

Fair value adjustments of identifiable intangible assets are estimated to be marginal. ***[Fair value adjustments of identifiable intangible assets are estimated at SEK 40 billion.]***

The cash offer is subject to the satisfaction of all necessary approvals and clearances from competition authorities have been obtained.

Figure 2. Press releases announcing the corporate acquisition; 'Goodwill Only' (GO) version with the 'Identifiable Intangibles Recognised'(IIR) version in [] brackets and bold text

Stage 1: Valuation multiples information

Pre-acquisition information about the acquirer at Stage 1

Multiples

	Price	Market cap (SEKm)	P/E (reported) 2010	2011E	2012E	2013E	P/E (adjusted) 2010	2011E	2012E	2013E
Peer group 1										
Alcatel	3,34 USD	48 849	-8,0				-14,5	-20,9	17,6	12,8
Cisco Systems Inc	21,71 USD	778 535	16,3				13,5	13,5	11,9	10,9
Nokia	11,11 USD	266 629	16,8				13,7	13,7	12,5	14,1
Qualcomm	54,47 USD	579 324	27,8				22,1	17,9	16,8	16,2
Aggregate		**1 673 336**	**21,4**				**16,7**	**15,6**	**13,5**	**12,9**
Median		422 976	16,6				13,6	13,6	14,6	13,5
Ericsson (Our est.)	82,10 SEK	262 720	23,6	18,6	16,2	14,3	11,5	13,7	12,4	11,3
Ericsson (Consensus est.)	82,10 SEK	262 720	23,6				11,5	13,9	12,6	11,2
Median vs. Our estimates: premium (+) discount (-)			42%				-16%	1%	-15%	-16%
Median vs. Consensus estimates: premium (+) discount (-)			42%				-16%	2%	-14%	-17%
Peer group 2										
Dell Inc	13,70 USD	171 132	18,8				13,0	9,8	9,2	8,7
Hewlett Packard Co	46,99 USD	665 957	15,0				10,3	9,0	8,2	7,7
IBM	163,92 USD	1 304 481	14,2				14,2	12,5	11,4	10,1
Intel Corp	21,48 USD	771 871	10,5				10,5	10,5	9,8	9,5
Microsoft Corp	27,61 USD	1 500 975	13,1				13,1	10,8	10,0	9,3
Oracle Corporation	32,93 USD	1 076 479	27,2				19,7	15,8	14,3	12,8
Texas Instruments Inc	34,88 USD	263 394	13,3				13,3	13,4	12,6	11,7
Aggregate		**5 754 289**	**14,7**				**13,3**	**11,6**	**10,7**	**9,8**
Median		771 871	14,2				13,1	10,8	10,0	9,5
Ericsson (Our est.)	82,10 SEK	262 720	23,6	18,6	16,2	14,3	11,5	13,7	12,4	11,3
Ericsson (Consensus est.)	82,10 SEK	262 720	23,6				11,5	13,9	12,6	11,2
Median vs. Our estimates: premium (+) discount (-)			66%				-13%	27%	24%	18%
Median vs. Consensus estimates: premium (+) discount (-)			66%				-13%	28%	26%	17%

Post-acquisition information about the acquirer at Stage 1

Multiples ('Goodwill Only', GO version)

	Price	Market cap (SEKm)	P/E (reported) 2010	2011E	2012E	2013E	P/E (adjusted) 2010	2011E	2012E	2013E
Peer group 1										
Alcatel	3,34 USD	48 849	-8,0				-14,5	-20,9	17,6	12,8
Cisco Systems Inc	21,71 USD	778 535	16,3				13,5	13,5	11,9	10,9
Nokia	11,11 USD	266 629	16,8				13,7	13,7	12,5	14,1
Qualcomm	54,47 USD	579 324	27,8				22,1	17,9	16,8	16,2
Aggregate		**1 673 336**	**21,4**				**16,7**	**15,6**	**13,5**	**12,9**
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Ericsson (Our est.)	82,10 SEK	262 720	23,6	16,6	14,0	12,5	11,5	11,8	10,7	9,9
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Ericsson (Our est.)	82,10 SEK	262 720	23,6	16,6	14,0	12,5	11,5	11,8	10,7	9,9
Ericsson (Consensus est.)	82,10 SEK	262 720	23,6				11,5	13,9	12,6	11,2
Median vs. Our estimates: premium (+) discount (-)			66%				-13%	9%	7%	4%
Median vs. Consensus estimates: premium (+) discount (-)			66%				-13%	28%	26%	17%

Multiples ('Identifiable Intangibles Recognised', IIR version)

	Price (local)	Market cap (SEKm)	P/E (reported) 2010	2011E	2012E	2013E	P/E (adjusted) 2010	2011E	2012E	2013E
Peer group 1										
Alcatel	3,34 USD	48 849	-8,0				-14,5	-20,9	17,6	12,8
Cisco Systems Inc	21,71 USD	778 535	16,3				13,5	13,5	11,9	10,9
Nokia	11,11 USD	266 629	16,8				13,7	13,7	12,5	14,1
Qualcomm	54,47 USD	579 324	27,8				22,1	17,9	16,8	16,2
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Median		422 976	16,6				13,6	13,6	14,6	13,5
Ericsson (Our est.)	82,10 SEK	262 720	23,6	21,4	17,2	15,0	11,5	11,0	10,1	9,4
Ericsson (Consensus est.)	82,10 SEK	262 720	23,6				11,5	13,9	12,6	11,2
Median vs. Our estimates: premium (+) discount (-)			42%				-16%	-19%	-31%	-30%
Median vs. Consensus estimates: premium (+) discount (-)			42%				-16%	2%	-14%	-17%
Peer group 1										
Dell Inc	13,70 USD	171 132	18,8				13,0	9,8	9,2	8,7
Hewlett Packard Co	46,99 USD	665 957	15,0				10,3	9,0	8,2	7,7
IBM	163,92 USD	1 304 481	14,2				14,2	12,5	11,4	10,1
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Ericsson (Consensus est.)	82,10 SEK	262 720	23,6				11,5	13,9	12,6	11,2
Median vs. Our estimates: premium (+) discount (-)			66%				-13%	2%	1%	-2%
Median vs. Consensus estimates: premium (+) discount (-)			66%				-13%	28%	26%	17%

Results (1)

Stage 1 (basic information): Support for H1

How does the acquisition affect your valuation of the Ericsson stock (share)?

	Decrease	Increase	No effect
GO alternative	4 (19%)	14 (67%)	3 (14%)
IIR alternative	13 (68%)	5 (26%)	1 (5%)

Cross-tabulation and chi-square test: $\chi 2=9.95$, $p < 0.01$
Mann-Whitney test: $Z = -2.94$, $p < 0.01$

- Across the settings, the average participant opened 11.80 of the available 14 screens
- No difference in information search behavior or confidence across the two settings.

Stage 2: DCF analysis information

DCF analysis

DCF model assumptions									
(SEKm)	**2008**	**2009**	**2010**	**2011E**	**2012E**	**2013E**	**2018E**	**2024E**	**2031E**
Net sales	208 930	206 477	203 348	207 120	215 535	218 330	253 104	268 675	330 437
EBITDA	25 361	25 441	27 580	29 588	31 803	32 150	36 700	40 301	47 583
EBITA	19 968	21 135	23 574	25 088	27 303	27 650	27 335	30 360	35 357
NOPLAT	11 702	9 707	12 550	12 642	14 153	13 800	15 604	18 821	23 180
FCFF	15 165	22 437	20 155	12 925	16 165	12 693	21 427	21 783	23 715
%	**2000-10**	**2005-10**	**2010**	**2011E**	**2012E**	**2013E**	**2014-18E**	**2019-24E**	**2025-31E**
Net sales CAGR, %	-3	6	-2	2	4	1	3	1	3
EBITDA growth	0	-5	8	7	7	1	2	2	3
EBITA growth	3	-7	12	6	9	1	1	2	2
NOPLAT growth	1	-10	29	1	12	-2	1	2	2
FCFF growth	-	-5	-10	-36	25	-21	6	8	2
EBITDA margin	13,7	17,2	13,6	14,3	14,8	14,7	14,9	14,8	14,6
EBITA margin	10,0	13,4	11,6	12,1	12,7	12,7	11,2	11,1	10,9
NOPLAT margin	5,7	9,4	6,2	6,1	6,6	6,3	6,5	6,8	7,1
FCFF margin	7,3	8,6	9,9	6,2	7,5	5,8	8,4	7,6	7,3
Capex/Sales	3,1	2,8	2,6	2,7	2,6	2,5	3,2	4,0	4,0
Capex/Depreciation	77	79	133	122	122	122	92	114	124
Net working cap/Sales	12,0	12,0	9,0	10,6	11,2	13,4	15,0	17,0	17,0

WACC assumptions, %		**Calculation of DCF, SEKm**		**DCF checkpoints, %**	
Risk-free interest rate	4,0	PV operating C/F	239 180	Sustainable growth	3,0
Equity market risk premium	5,0	Net debt	-51 295	Sust EBITDA margin	14,4
Extra risk premium	-	Market value associates	10 500	Sust EBITA margin	10,8
Equity beta (x)	1,0	Market value minorities	1 679	Terminal value/DCF	28
Cost of equity	9,0	DCF value	299 296		
Pre-tax cost of debt	6,5	**DCF/share (SEK)**	93,5	**Share price potentatial**	**13,9**
Equity weight	100				
WACC	**9,0**				

Pre-acquisition information about the acquirer at Stage 2

DCF analysis (GO and IIR versions)

DCF model assumptions									
(SEKm)	**2008**	**2009**	**2010**	**2011E**	**2012E**	**2013E**	**2018E**	**2024E**	**2031E**
Net sales	208 930	206 477	203 348	273 957	287 719	294 845	335 220	347 471	415 862
EBITDA	25 361	25 441	27 580	36 414	40 163	41 687	52 294	55 943	64 459
EBITA	19 968	21 135	23 574	30 930	34 600	36 059	39 891	43 086	49 072
NOPLAT	11 702	9 707	12 550	17 725	20 249	20 002	24 419	27 391	32 472
FCFF	15 165	22 437	20 155	14 629	20 323	17 313	29 366	29 435	31 502
%	**2000-10**	**2005-10**	**2010**	**2011E**	**2012E**	**2013E**	**2014-18E**	**2019-24E**	**2025-31E**
Net sales CAGR, %	-3	6	-2	35	5	2	3	1	3
EBITDA growth	0	-5	8	32	10	4	1	1	2
EBITA growth	3	-7	12	31	12	4	1	1	2
NOPLAT growth	1	-10	29	41	14	-1	1	2	2
FCFF growth	-	-5	-10	-27	39	-15	-2	7	2
EBITDA margin	13,7	17,2	13,6	17,9	19,8	20,5	16,0	15,9	15,7
EBITA margin	10,0	13,4	11,6	15,2	17,0	17,7	12,3	12,2	12,0
NOPLAT margin	5,7	9,4	6,2	8,7	10,0	9,8	7,6	7,7	7,9
FCFF margin	7,3	8,6	9,9	7,2	10,0	8,5	9,3	8,0	7,7
Capex/Sales	3,1	2,8	2,6	2,7	2,6	2,5	3,2	4,0	4,0
Capex/Depreciation	77	79	133	122	122	122	101	123	133
Net working cap/Sales	12,0	12,0	9,0	8,1	8,4	9,9	15,0	17,0	17,0

WACC assumptions, %		**Calculation of DCF, SEKm**		**DCF checkpoints, %**	
Risk-free interest rate	4,0	PV operating C/F	351 992	Sustainable growth	3,0
Equity market risk premium	5,0	Net debt	60 055	Sust EBITDA margin	14,4
Extra risk premium	-	Market value associates	10 529	Sust EBITA margin	10,8
Equity beta (x)	1,0	Market value minorities	3 170	Terminal value/DCF	29
Cost of equity	9,0	DCF value	299 296		
Pre-tax cost of debt	6,5	**DCF/share (SEK)**	93,5	**Share price potentatial**	**13,9**
Equity weight	85				
WACC	**8,3**				

Post-acquisition information about the acquirer at Stage 2

Results (2)

Stage 2 (additional information): Support for H2

How does the acquisition affect your valuation of the Ericsson stock (share)?

	Decrease	Increase	No effect
GO alternative	4 (19%)	11 (52%)	6 (29%)
IIR alternative	8 (42%)	7 (26%)	4 (21%)

Cross-tabulation and chi-square test: ns
Mann-Whitney test: ns

- 25 participants kept their initial equity valuation judgement at stage 2 and 15 altered their assessments. The former group considered fewer information screens and used less time than the latter group, suggesting that the additional information had different influence on the participants.

Results (3)

- Supplemental study of real Ericsson analysts was conducted in March 2011.
- Web experiment sent to 78 analysts. Six usable responses.
- The supplemental study provides a check of the validity of the experimental design and the results.

	Analyst 1	Analyst 2	Analyst 3	Analyst 4	Analyst 5	Analyst 6
Age	44	40	46	45	35	39
Years of experience	17	10	21	17	10	10
Years following Ericsson	1	8	19	17	8	10
Current recommendation	Buy	Buy	Neutral	Neutral	Sell	Buy
Allocation alternative	GO	GO	GO	GO	IIR	IIR
Assessment Stage 1	No effect	Decrease	Increase	No effect	Decrease	Decrease
Assessment Stage 2	No effect	Decrease	Increase	No effect	Decrease	No effect
DCF	70	20	25			85
EV/EBITDA	20	10	10	10		10
EV/EBIT		30	5	80		
EV/SALES	5	30				
Price/BV			10			
P/E ratio	5	10	50	10	100	5

Some limitations

- Limited number of analysts.
- Participants may have been differently affected by their familiarity of Ericsson.
- No goodwill impairment losses were assumed to occur during the three-year forecast period.

Summary of results

- Allocation of the acquisition premium to goodwill instead of identified intangibles led to higher equity valuation judgements among the studied analysts.

- Results in comparison with Hopkins et al. (2000)

  - Short-term earnings effects still appear to be of key importance for analysts' valuation judgements. Analyst judgement in response to new methods with similar impact on P/L as old abandoned methods, appears to follow the same pattern as before.

- Additional DCF analysis information made a number of analysts change their judgement so that the accounting treatment effect was no longer significant.

- The participants who kept their initial evaluations after receiving the DCF analysis information considered fewer information screens and used less time.