

EXECUTIVE TEAM INFORMATION SYSTEM AND FINANCIAL REPORTING COMPETENCIES, AND VOLUNTARY ADOPTION OF XBRL REPORTING

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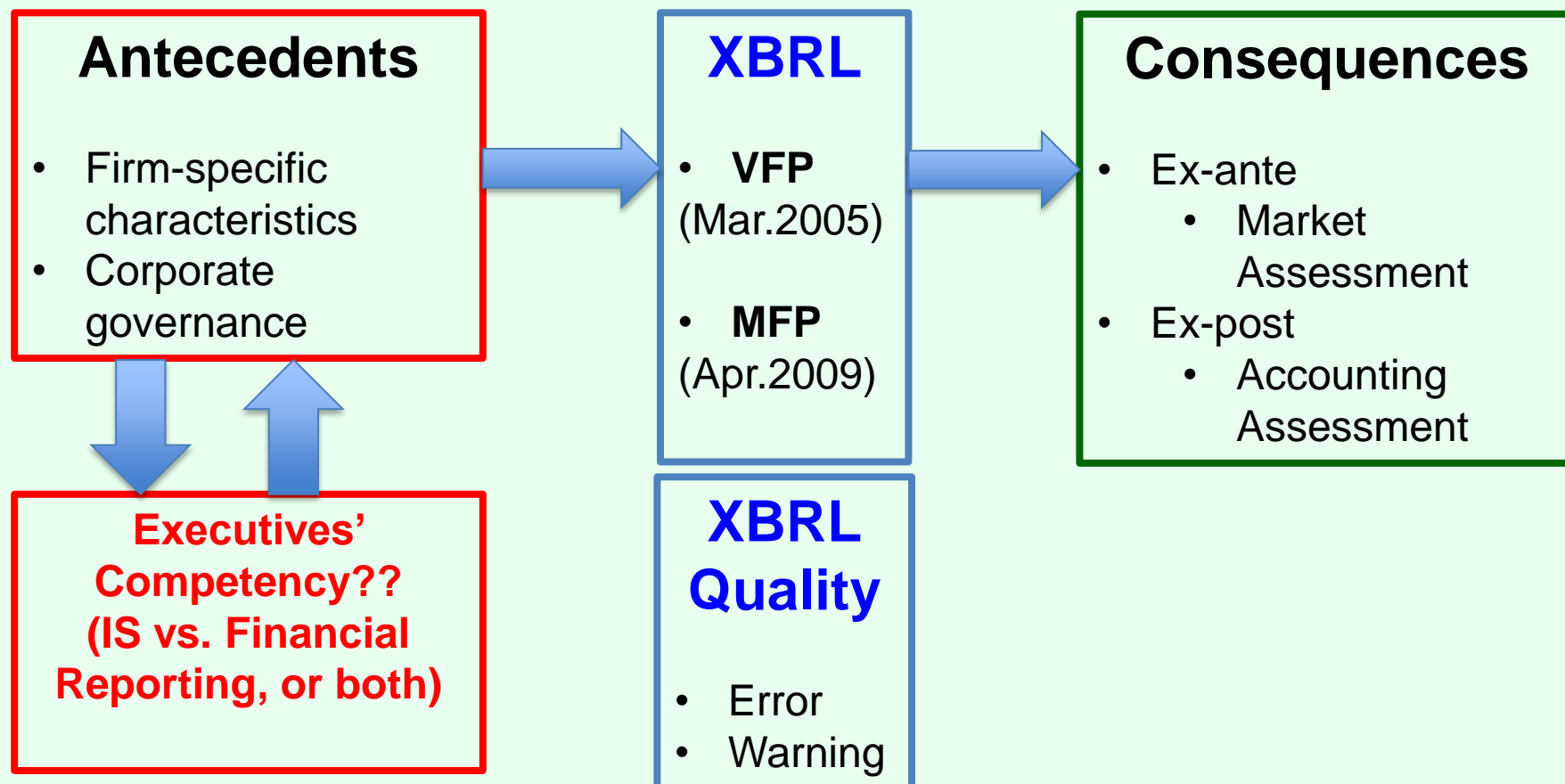
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TO THE NEXT LEVEL OF BUSINESS REPORTING. AND BEYOND.

XBRL Research



Our Research Focus

- Examine whether executives with both IS and financial reporting competencies promote the adoption of XBRL
 - whether participants in the VFP have executive team members with more IS- or financial reporting- related competencies
- Examine whether the competencies of the executive team affect the quality of the XBRL implementation
 - the excessive use of taxonomy extensions
 - the frequency of errors, such as instance and taxonomy related errors

Exe. IS Competency and VFP

- As the strategic impact of IT became evident, researchers and practitioners argued that the management of IT and leadership in IT must be a shared *endeavour* between the top executive team and IS professionals.
 - achieving competitive advantage (e.g. financial performance)
 - understanding of IT problems and solutions
 - accelerating the process of new innovations (e.g. e-business, ERP, and XBRL, etc).
 - coping with complex problems and develop innovative strategic solutions
 - improving the dissemination of information to the capital markets
- **H1:** Firms with executive team members with higher levels of information system competencies are more likely to participate in the voluntary XBRL filing program.

Exe. Financial Reporting Competency and VFP

- Financial reporting and accounting related competency of executives plays an important role in determining the quality of financial reporting.
 - professional accounting certification or other accounting-related work experience
 - more years of FR-related work experience, advanced degrees, and professional certification (like a CPA).
 - In fact, financial reporting literacy is ***negatively*** associated with financial reporting errors
- **H2:** Firms with executive team members with higher levels of financial reporting competencies are more likely to participate in the voluntary XBRL filing program.

Exe. IS and Financial Reporting Competencies and VFP Quality (Extensions)

- **Extensions:** created by firms when necessary to define elements for a specific reporting application not covered by an XBRL industry-level elements (as a proxy for data quality of XBRL filings).
- the proportion of company-defined elements (extensions) over total elements-- a smaller percentage represents a better fit
- Debreceeny et al. (2011) assess the impact of extensions on the quality and comparability of the XBRL-tagged data, and conclude that more than 40% of the extensions were unnecessary.
- **H3:** The quality of the voluntary XBRL filings as measured by the number of extensions used vary according to the level of executives IS and financial reporting competencies.

Exe. IS and Financial Reporting Competencies and VFP Quality (Instance and Taxonomy Errors)

- **Taxonomy:** A dictionary of the financial terms used in preparing financial statements or other business reports and the corresponding XBRL elements. It defines the specific tags for individual items of data (such as “cash and cash equivalents”). – [Financial reporting function](#)
- **Instance:** A well-formed XML document that includes one or more XBRL elements. It is created by mapping financial information to XBRL taxonomies that describe financial “facts” and the relationships between them. – [IS related function](#)
- **H4:** The quality of the voluntary XBRL filings as measured by the number of taxonomy related and instance related errors and warnings vary according to the level of executives IS and financial reporting competencies.

Method

- **Sample:** 692 VFP interactive submissions from 138 firms (from the *U.S. Securities and Exchange Commission Interactive Financial Report Viewer* website during 2005-2009)
- executives' IS/IT and financial reporting competencies
 - *Form 10-Ks* and *DEF-14A*
 - manual review via *Lexis-Nexis*, and *twelve online information sources*
- A subsequent cross-match with *Compustat*
- Use the propensity score matching approach (**PSM**): based on SIZE, Profitability (ROA), and MTB Ratio
- **Final Sample: 102 VFP-XBRL vs. 102 Non-VFP-XBRL**

Measures (DVs)

- **VFP:** is one 1 if the firm participated in the VFP, and zero otherwise;
- **VFP Quality:**
 - the rates of extension usage (number of extension element / number of total element;
 - the number of instance validation errors and warnings, taxonomy validation errors and warnings, and the combined errors and warnings in the first VFP filings;

Measures (IVs)

- **IS competency:**
 - **ITad:** is one if the executive members have IT related academic degree, zero otherwise;
 - **ITjob:** is one if the executive members have held an IT related jobs, zero otherwise;
 - **ITfirm:** is one if the executive members have worked at an IT-intensive firm, zero otherwise;
- Financial Reporting competency:
 - **ACCTpro:** is one if the CEO/CFO has a professional certification (e.g. CPA, CA, and other accounting-related certifications), zero otherwise
 - **ACCTexp:** is one if the CEO/CFO has experience as a public accountant, auditor, principal or chief financial officer, controller, or principal or chief accounting officer, zero otherwise;

Measures (IS/IT Area)

- **IS Executives (CIOORITEXPERT):** is one if the company has a CIO (Chief Information Officer) or other type of IT expert (Lim et al. 2010; 2011), zero otherwise
- **Strategic IT Role:**
 - Automative, (e.g., replacing human labor by automating business processes);
 - Informative, (e.g., providing new information about business activities to senior management, to employees across the firm, and to customers for better decision making)
 - Transformative, (e.g., redefining business and industry processes and relationships).

Measures (CVs)

- **Size:** is \log Total Assets;
- **LOSS:** equals to one if Net Income is < 0 , zero otherwise;
- **ROA:** is Net Income / Total Assets;
- **MTB:** is Fiscal Closing Price / Book Value Per Share;
- **LEV:** is long-term debt divided by total assets;
- **R&D:** is R&D Expenses / Sales;
- **BOARDSIZE:** number of directors;
- **CEOCHAIR:** is one if the current CEO serves a chairman of the board, zero otherwise;
- **Industry:** includes industry fixed effects using 2-digit SIC codes;
- **Year:** includes fixed year effects.
- Winsorized at 1% and 99% levels.

Descriptive Statistics

	VFP-XBRL (N=102)			Non-VFP-XBRL (N=102)			p-value for the Test of Difference	
	Mean	Median	Std.	Mean	Median	Std.	Mean	Median
CEOISCOM1	0.242	0.000	0.042	0.135	0.000	0.033	0.106*	0.000*
CEOACCTCOM1	0.048	0.000	0.021	0.116	0.000	0.031	-0.067*	0.000
CFOISCOM1	0.213	0.000	0.040	0.174	0.000	0.037	0.038	0.000
CFOACCTCOM1	0.582	1.000	0.048	0.747	1.000	0.043	-0.165***	0.000***
CIOORITEXPERT	0.640	1.000	0.047	0.359	0.000	0.047	0.281***	0.000***
SIZE	9.077	9.474	0.211	6.622	6.753	0.193	2.455***	2.678***
LOSS	0.108	0.000	0.031	0.245	0.000	0.042	-0.137***	0.000**
ROA	0.041	0.064	0.015	-0.067	0.022	0.048	0.108**	0.030***
MTB	6.913	2.862	2.385	5.143	2.644	1.214	1.769	0.108
LEV	0.240	0.159	0.053	0.230	0.104	0.030	0.010	0.003
R&D	0.033	0.000	0.005	0.028	0.000	0.006	0.004	0.000*
BOARDSIZE	11.09	11.00	0.356	8.290	8.000	0.234	2.792***	3.000***
COECHAIR	0.574	1.000	0.049	0.436	0.000	0.050	0.139**	0.000**

Logistic Regression(IS/IT Area)

	Exp. sign	(1) Coeff. p-value	(2) Coeff. p-value	(3) Coeff. p-value	(4) Coeff. p-value
Intercept		-5.041 ***	-5.411 ***	-5.542 ***	-6.372 ***
SIZE	(+)	0.559 ***	0.608 ***	0.557 ***	0.416 ***
LOSS	(-)	-0.992 *	-1.206 **	-1.424 **	-1.199 **
ROA	(+)	-0.842	-0.993	-1.486	-0.618
MB	(?)	0.009	0.011	0.011	0.009
LEV	(?)	0.564	0.487	0.470	0.578
R&D	(+)	5.055 *	4.986 *	5.134 *	4.661
INFO	(+)		1.056 **	1.105 **	1.171 ***
AUTO	(+)		1.708	1.999 *	2.017
CIOORITEXPERT	(+)			0.655 **	0.573 *
BOARDSIZE	(+)				0.182 **
CEOCHAIR	(-)				0.165
Industry		Included	Included	Included	Included
Year		Included	Included	Included	Included
N		204	204	204	204
Adj. R ²		0.352	0.38	0.393	0.422
Model chi-square		41.7***	43.7***	44.8***	46.8***
Correctly classified		81.3	82.1	82.6	84.2

Results: IS vs. FR

IS Competencies						Financial Reporting Competencies					
	Exp. sign	CEO (1)		CFO (2)			Exp. sign	CEO (3)		CFO (4)	
		Coeff.	p-value	Coeff.	p-value			Coeff.	p-value	Coeff.	p-value
Intercept		-6.627	***	-6.576	***	Intercept		-6.471	***	-5.849	***
EXE.ISCOM1	(+)	1.441	**			EXE.ACCTCOM1	(-)	-1.879	***		
EXE.ISCOM1	(+)			0.627	*	EXE.ACCTCOM1	(-)			-0.645	*
CIOORITEXPERT	(+)	0.482		0.621	*	CIOORITEXPERT	(+)	0.459		0.501	
INFO	(+)	0.920	**	1.271	***	INFO	(+)	1.279	***	1.075	**
AUTO	(+)	1.939		2.193	*	AUTO	(+)	2.082		2.132	*
SIZE	(+)	0.447	***	0.423	***	SIZE	(+)	0.442	***	0.416	***
LOSS	(-)	-1.044	**	-1.273	**	LOSS	(-)	-1.284	**	-1.215	**
ROA	(+)	-0.563		-0.924		ROA	(+)	-0.594		-0.598	
MB	(?)	0.008		0.009		MB	(?)	0.006		0.010	
LEV	(?)	0.708	*	0.538		LEV	(?)	0.520		0.534	
R&D	(+)	0.764		3.572		R&D	(+)	4.643		5.504	*
BOARDSIZE	(+)	0.180	**	0.185	***	BOARDSIZE	(+)	0.198	***	0.175	**
CEOCHAIR	(-)	0.227		0.184		CEOCHAIR	(-)	0.042		0.144	
Industry		Included		Included				Included		Included	
Year		Included		Included				Included		Included	
N		204		204		N		204		204	
Adj. R ²		0.454		0.430		Adj. R ²		0.455		0.433	
Model chi-square		48.1***		46.9***		Model chi-square		47.8***		47.4***	
Correctly classified		85.4		84.3		Correctly classified		85.0		84.4	

Results: Both IS and FP

	Exp. sign	(1) Coeff.	p-value	(2) Coeff.	p-value	(3) Coeff.	p-value
Intercept		-6.746	***	-6.034	***	-6.566	***
CEOISCOM1	(+)	1.486	**			1.468	**
CEOACCTCOM1	(-)	-2.025	***			-1.987	***
CFOISCOM1	(+)			0.691	*	0.763	*
CFOACCTCOM1	(-)			-0.694	**	-0.539	
CIOORITEXPERT	(+)	0.356		0.546	*	0.353	
INFO	(+)	1.003	**	1.171	***	1.056	**
AUTO	(+)	1.974		2.329	*	2.298	*
SIZE	(+)	0.473	***	0.424	***	0.484	***
LOSS	(-)	-1.098	**	-1.300	**	-1.209	**
ROA	(+)	-0.480		-0.963		-0.859	
MB		0.005		0.010		0.006	
LEV		0.661		0.487		0.576	
R&D	(+)	0.625		4.365		0.077	
BOARDSIZE		0.199	**	0.178	**	0.193	**
CEOCHAIR		0.095		0.177		0.097	
Industry			Included		Included		Included
Year			Included		Included		Included
N			204		204		204
Adj. R ²			0.479		0.442		0.495
Model chi-square			49.1***		47.3***		50.1***
Correctly classified			86.1		84.7		86.7

Results: VFP Quality

	Exp. Sign	Extension (1)		Instance (2)		Taxonomy (3)	
		Coeff.	p-value	Coeff.	p-value	Coeff.	p-value
Intercept		0.530	***	0.744		0.387	
CEOISCOM1	(-)	-0.067	**	-0.312	***	0.060	
CEOACCTCOM1	(-)	-0.003		-0.135		0.105	
CFOISCOM1	(-)	0.000		0.373		-0.035	
CFOACCTCOM1	(-)	-0.048	*	-0.105		-0.136	**
CIOORITEXPERT	(-)	0.043		-0.020		0.005	
CEOAGE	(?)	-0.003		0.006		-0.001	
CEOTENURE	(?)	-0.002		0.007		0.004	
CFOAGE	(?)	-0.004		0.004		-0.004	
CFOTENURE	(?)	-0.001		-0.012		-0.009	
INFO	(-)	0.026		-0.088		-0.008	
AUTO	(-)	0.171		0.058		0.152	
SIZE	(-)	0.003		-0.075	***	-0.008	
LOSS	(?)	-0.102		-0.350		-0.050	
ROA	(?)	-0.417	**	-0.694		0.362	
MB	(?)	0.000		0.001		-0.001	
LEV	(?)	0.087		0.324		0.263	
R&D	(?)	0.470		2.048	**	-0.750	
Industry			Included		Included		Included
Year			Included		Included		Included
N			91		91		91
F-value			0.001		0.045		0.825
R ²			0.531		0.346		0.175

Endogeneity Concern

	Exp. sign	(1) <u>Coeff.</u>	p- value	(2) <u>Coeff.</u>	p- value	(3) <u>Coeff.</u>	p- value
Intercept		-6.353	***	-6.601	***	-6.278	***
CEOISCOM1RESID+	(+)	1.658	*			1.532	*
CEOISCOM1RESID-		0.7036				1.226	
CEOACCTCOM1	(-)					-1.941	***
CFOISCOM1RESID+	(+)			1.092	*	1.543	**
CFOISCOM1RESID-				-0.756		-1.263	
CFOACCTCOM1	(-)					-0.563	*
CIOORITEXPERT	(+)	0.520	*	0.612	*	0.371	
INFO	(+)	0.984	**	1.219	***	1.101	**
AUTO	(+)	2.015		2.173	*	2.311	
SIZE	(+)	0.432	***	0.417	***	0.457	***
LOSS	(-)	-1.033	*	-1.244	**	-1.144	**
ROA	(+)	-0.472		-0.840		0.731	
MB		0.010		0.010		0.01	
LEV		0.635		0.518		0.44	
R&D	(+)	4.077		3.557		2.925	
BOARDSIZE		0.176	**	0.189	***	0.199	**
CEOCHAIR		0.221		0.214		0.152	
Industry		Included		Included		Included	
Year		Included		Included		Included	
N		204		204		204	
Adj. R²		0.441		0.431		0.494	
Model chi-square		47.8***		47.1***		50.2***	
Correctly classified		84.9		84.4		86.5	

Other Robustness Checks

- **Alternative IT- and Financial Reporting Competency Measures**
 - Use an individual components of competency measures:
 - (1) ITad; (2) ITjob; (3) ITfirm
 - (1) ACCTpro; (2) ACCTexp:
 - Use count measures
 - (1) ISCOM2 (min.=zero; max. =3)
 - (2) ACCTCOM2 (min.=zero; max. =2)
- **Alternative VFP Quality**
 - EXTENSION2 variable = the number of extension element / (number of extension element + number of official element)

Other Robustness Checks

- **Accounting for Corporate Governance**
 - board independence (BDIND) = the number of independent board members
 - Board meetings (BMEET) = the frequency of board meetings
 - G-index
- **Alternative Industry Effects**
 - three broad industry control dummy variables (Manufacturing, Finance, and Service) based on SIC.
 - HHI index

Limitations

- Suffers from ***a potential survivorship bias problem***.
 - small firms or those with very low executive rank (e.g. some CFO, CIO, or other IT experts) may not have made the final sample used in empirical tests, biasing the results in favour of the hypotheses.
- ***Other factors such as IT intensity and/or cumulative IT maturity*** (e.g. the current state of IT or several new areas of IT investments) could play a critical role in determining the costs or benefits of IT investments.

Contributions

- Extend the literature on the relation between firm-specific characteristics and VFP adoption.
 - executives' competencies or associated interests and attitudes that are proxied by competencies can influence decisions about voluntary adoption of XBRL to gain anticipated competitive advantages.
- Contribute to the debate on the antecedents of XBRL quality.
 - higher IS competencies are more strongly associated with the voluntary adoption of XBRL than executive teams with higher financial reporting competencies.
- Contribute to the identification of antecedents of XBRL quality.
 - executive team members' organizational roles, competency types and competency levels are associated with XBRL quality.

Concluding Remarks

- Our findings contribute to a **deeper understanding** of the characteristics of firms and their management teams that influence their adoption of innovative technologies such as XBRL.
- **A guide** for investigating voluntary XBRL filings in other jurisdictions and other voluntary disclosures such as XBRL filings for sustainability reporting and voluntary standardized business reporting in XBRL in jurisdictions where such reporting is not mandatory.
 - developing an XBRL adoption strategy.
 - understanding the determinants of the quality of XBRL data.