The options market reaction to financial reporting comparability

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Introduction

- **Scholars** and **practitioners** alike have traditionally used **option prices** to infer **volatility expectations** by **market participants** (Kuo and Wang, 2009).

- This is because **implied volatility (IV)** is expected to reflect the **market's assessment** of **price uncertainty** of the underlying **asset** (Campa and Chang, 1995).

- At the same time, the **options market** has been seen as more **forward-looking** than the **stock market**, with **changes** in **IV** to be representing **changes** in **uncertainty expectations** by market participants.

Introduction (1)

- **Information** in **financial reports** should **enable investors** to **improve price discovery**, and the amount of **accounting comparability** among **industry peers** has been considered a **desirable property** of corporate financial reporting.

- Financial reporting **comparability** has been shown to **improve** the **quality** of **financial information** (De Franco et al., 2011; Barth et al., 2012; Kim et al., 2013; Chen et al., 2014; Kim et al., 2016) and the **valuation performance of peer-based valuation models** (Young and Zeng, 2015), by further improving the **pricing efficiency** of **accruals** (Chen and Gong, 2019).

- A fundamental difference between **financial reporting comparability** and other **financial reporting information quality** attributes is that the former constitutes a **relative**, rather than an **absolute** or **stand-along measure** of the **quality** of financial reporting; thus, **comparability** should be particularly useful for **relative** corporate **evaluation purposes.**

Introduction (2)

- In this paper, we examine the **association** between **financial reporting comparability**, representing a financial reporting property affecting the **relative valuation** of firms with reference to their **peers,** and **option market reaction** around **quarterly earnings announcements** (**EA**).

- We focus on **short-term,** and also **long-term IV** (**STIV** and **LTIV**, respectively) **levels** and **changes**, and also on the **term structure** of **IV** (**TSIV**) around **EA** dates.

- We focus on **options markets**; the investing outlet of the most **sophisticated investors**, who possess **information advantages** in comparison to **equity** traders (Diavatopoulos et al. 2012; Jin et al. 2012; Kim and Zhang, 2014; Goodman et al., 2018), with **investors** in **option** markets often **trading in advance** of **stock market** investors (Xing et al., 2010; Diavatopoulos et al., 2012; An et al., 2014).

- **Earnings risk** should be priced within **options market** pricing; option **prices** can be used to learn about **stock price uncertainty** regarding **information** released by **EA** (Dubinsky et al., 2019).

Motivation

- **Comparable** financial statements make it **easier** for **investors** to **understand** and **evaluate** firm **performance,** as they need to make **fewer adjustments** and apply **less judgement** in calculations when **comparing** the performance of firms with their **peers** (Kim et al., 2013).

- Financial statement **comparability enhances** the **usefulness** of accounting **information** and enriches the **information set available** to firms and **potential investors**, resulting in **positive impacts** on **capital allocation** and **investment decisions** (Cheng and Wu, 2018).

- **Comparability** also **lowers** the **costs** of **acquiring** and **processing information** and **improves information quality** for financial statement users (Zhang et al., 2020).

Motivation (1)

- Past research has systematically observed a **significant increase** in **IV before EA**, followed by a **significant drop** afterwards with further evidence that that short-term **ATM**) **IV** is at its **peak** on **EA** days (Whaley and Cheung, 1982; Donders and Vorst, 1996; Dubinsky and Johannes, 2005; Truong et al., 2012).

- We expect that as **comparability improves** the **relative valuation** of firms with reference to their **peers**, it should **help** towards **resolving option market investor uncertainty** about firms' **future prospects** around **EA**, and **confidence** of **prediction** of **potential economic inflows** to the firm, as the latter are **reflected** in their **forward-looking expectations** incorporated in **IV levels** and **changes** around EA.

- Thus, it should **positively** contribute to **more efficient processing** of financial **information** and **news** about the firm contained in the **announcement,** ultimately **facilitating** the process of formulating **forward-looking expectations** necessary for **options pricing.**

Motivation (2)

Thus, accounting **comparability** is expected to be **associated** with a) **lower IV** levels on the **announcement date** and b) **greater resolution** of **uncertainty after** the **event**.

H1: *Accounting comparability of firms with their industry peers should be negatively associated with options IV levels on the day of quarterly earnings announcements.*

H1a: *Accounting comparability of firms with their industry peers should be associated with stronger IV resolution after quarterly earnings announcement events.*

Sample selection

- We employ **US listed firms** with **quarterly data** on **Compustat** that have **equity options** data on the Ivy DB **OptionMetrics** database between **1996-2021** (as the initial sample with data on Optionmetrics is 1996).

- Our initial sample from Compustat consists of **608,870 quarter-firm observations** during 1996-2021, out of which **104,838** are matched to Optionmetrics based on the security ID available on the latter.

- Limited data loss due to variable calculations results in a usable **sample** with maximum of **103,066** firm-year observations.

Sample selection (1)

- Optionmetrics reports **daily**, among other items, **IVs** from **equity options** (both calls and puts) that are closest-to-the-money, with standardized maturities ranging from 30 days to 730 days.

- We use **equity options IV** as a proxy for market participant's **forward-looking view** of **uncertainty** regarding the **underlying stock**.

- In accordance with past research, we first focus on the **shortest maturity (30 days),** which should be the **quickest** to **respond** to **new information** released via **EA** (e.g., Donders et al., 2000; Goyal and Seratto, 2009; Truong et al., 2012; Goodman et al., 2018), and use both the **average** of **call** and **put IV** (Truong et al., 2012) and the **linearly delta-interpolated IV** of **calls** and **puts** (Mixon, 2009) to derive our two main proxies for **ATM STIV**.

- We further proxy **long-term IV** by the standardized **IV** of contracts with **182** days to maturity (**LTIV**).

Methodology

Measuring accounting comparability

- Following **De Franco et al. (2011),** in the **first** step, we estimate over the last **16 quarters** for **each firm** individually:

$$Earnings_{i,t} = \alpha_i + \beta_i Return_{i,t} + \varepsilon_{i,t} \quad (1)$$

- In the **second** step, we use these **accounting functions** for every **pair** of firms i, j in the **same industry** (two-digit SIC code).

$$E(Earnings)_{i,i,t} = \hat{\alpha}_i + \hat{\beta}_i Return_{i,t} \quad (2)$$

$$E(Earnings)_{i,j,t} = \hat{\alpha}_j + \hat{\beta}_j Return_{i,t} \quad (3)$$

- We define accounting comparability between firms i and j ($CompAcc_{ijt}$) as the **negative value** of the **average absolute difference** between the **predicted earnings** using **firm *i*'s** and ***j*'s** functions:

$$Comparability_{i,j,t} = -\frac{1}{16} \times \sum_{t-15}^{t} |E(Earnings)_{i,i,t} - E(Earnings)_{i,j,t}| \quad (4)$$

- **Greater values** indicate **greater accounting comparability**.

- We estimate **accounting comparability** for each firm ***i* – firm *j* combination** for J firms within the **same SIC two-digit industry** classification and whose fiscal year ends in March, June, September, or December.

Methodology (1)

- After estimating accounting **comparability** for **each firm $\boldsymbol{i}$ – firm $\boldsymbol{j}$ combination**, we **rank** all the J values of $Comparability_{i,j,t}$ for each firm i from the **highest** to **lowest**. $\boldsymbol{AccComp\_M1_{i,t}}$ is the average $Comparability_{i,j,t}$ of the **four** firms j with the **highest comparability** to **firm $\boldsymbol{i}$** during period t.
- For robustness purposes, we also estimate an **alternative** measure of accounting **comparability,** based on **Basu (1997)**.

- In this alternative measure, **equation (1)** now becomes:

$$Earnings_{i,t} = \gamma_i + \delta_i Return_{i,t} + \xi_i D_{Return_{i,t}<0} + \varphi_i Return_{i,t} \times D_{Return_{i,t}<0} + e_{i,t}$$

where $D_{Return_{i,t}<0}$ is a **dummy** variable that takes the value of **one** if the **return** is **negative** (and zero otherwise). This modification incorporates a **potential influence** from **past negative performance** and its **effect** on **returns** as in Basu (1997).

Now, equations (2) and (3) become:

$$E(EarningsBasu)_{A,A,t} = \hat{\gamma}_A + \hat{\delta}_A Return_{A,t} + \hat{\xi}_A D_{Return_{A,t}<0} + \hat{\varphi}_i Return_{A,t} \times D_{Return_{A,t}<0}$$

$$E(EarningsBasu)_{A,T,t} = \hat{\gamma}_T + \hat{\delta}_T Return_{A,t} + \hat{\xi}_T D_{Return_{A,t}<0} + \hat{\varphi}_i Return_{A,t} \times D_{Return_{A,t}<0}$$

Methodology (2)

- Finally, we get the **Basu (1997)-**based measure of comparability (named $ComparabilityBasu_{i,j,t}$) via

$$ComparabilityBasu_{A,T,t} = -\frac{1}{16} \times \sum_{t-15}^{t} |E(EarningsBasu)_{i,i,t} - E(EarningsBasu)_{i,j,t}|$$

- After estimating **accounting comparability** for **each firm $\boldsymbol{i}$ – firm $\boldsymbol{j}$ combination**, we **rank** all the J values of $ComparabilityBasu_{i,j,t}$ for each **firm $\boldsymbol{i}$** from the **highest** to **lowest.** $\boldsymbol{AccComp\_M2_{i,t}}$ is the average $ComparabilityBasu_{i,j,t}$ of the **four** firms j with the **highest comparability** to **firm $\boldsymbol{i}$** during period t.

- In all cases, we **exclude** holding firms, American Depository Receipts (ADRs) and limited partnerships (De Franco et al., 2011, footnote 3).

- We also **exclude firm-year observations** whose **financial year** does **not end** in either **March, June**, **September,** or **December.**

- All variables used in our analyses are **winsorized** at **percentiles 1-99%** on a year-quarter basis.

Methodology (3)

Measuring STIV, LTIV and TSIV

- Regarding our **IV** measures, let $\boldsymbol{\sigma^{c}_{i,m,\tau}}$ **(respectively $\boldsymbol{\sigma^{p}_{i,m,\tau}}$)** stand for the **firm $\boldsymbol{i}$ equity volatility**, as **implied** from the **closest-to-the-money call option** (respectively **put option)** with maturity m in days (and T_m in years) on (relative) day τ.

- By relative day τ the following is meant: As we are only interested in the **dynamics** of **IV** (and its term structure) around **EA** dates, our day **indexing $\boldsymbol{\tau}$** takes values $[\boldsymbol{-10}, \boldsymbol{-9}, \ldots, \boldsymbol{+10}]$ relative to the **firm $\boldsymbol{i}$ quarterly EA** day (day $\tau = 0$).

- For our measure of **STIV,** denoted $\boldsymbol{\sigma^{ST}_{i,\tau}}$**,** we fix the **maturity** to $m = \mathbf{30}$ days and estimate the **simple (call-put) average** of **at-the-money IV,** i.e. $\boldsymbol{\sigma^{ST}_{i,\tau}} = \mathbf{0.5}\left(\boldsymbol{\sigma^{c}_{i,30,\tau}} + \boldsymbol{\sigma^{p}_{i,30,\tau}}\right)$. Similarly, for the **LTIV,** we fix the maturity to $m = \mathbf{182}$ days and estimate the **average $\boldsymbol{\sigma^{LT}_{i,\tau}} = \mathbf{0.5}\left(\boldsymbol{\sigma^{c}_{i,182,\tau}} + \boldsymbol{\sigma^{p}_{i,182,\tau}}\right)$.**

- We focus on $\boldsymbol{\sigma^{ST}_{i,0}}$ (respectively $\boldsymbol{\sigma^{LT}_{i,0}}$) on the **quarterly EA day** ($\tau = 0$) and also on the **changes $\boldsymbol{\Delta\sigma^{ST}_{i,[x,y]}}$** (respectively $\boldsymbol{\Delta\sigma^{LT}_{i,[x,y]}}$) that stand for the differences $\boldsymbol{\sigma^{ST}_{i,x}} - \boldsymbol{\sigma^{ST}_{i,y}}$, (respectively $\boldsymbol{\sigma^{LT}_{i,x}} - \boldsymbol{\sigma^{LT}_{i,y}}$) which we calculate for **10** and **1-day windows** around the **quarterly EA** day.

Methodology (4)

Finally, we examine the **level** and the **changes** in the **TSIV** around the **quarterly announcement** dates, as proxies for **market participants' short-** and **long-term forward-looking view** of **uncertainty** about the underlying **stock**.

For each sample firm i, on day τ relative to its EA day for a given quarter, our proxy for the **TSIV** is estimated by running the following ordinary least squares

$$0.5\left(\sigma_{i,j,\tau}^{c} + \sigma_{i,j,\tau}^{p}\right) = \alpha_{i,\tau} + \beta_{i,\tau} \times T_j + e_{i,\tau},$$

across all maturities j.

The **simple (call-put) average IVs** that are **available** on **day** $\boldsymbol{\tau}$ are **regressed** on their **contract expiries** $\boldsymbol{T_j}$ in **years**, and the simple **OLS slopes** $\widehat{\boldsymbol{\beta}}_{\boldsymbol{i,\tau}}$ are used as **proxies** of the **TSIV** for **firm** $\boldsymbol{i}$ on **day** $\boldsymbol{\tau}$**.**

Portfolio analysis

- To examine the association of financial reporting **comparability** with the **levels** and **changes** of **IV** and its **term structure** around **quarterly EA**, we first employ standard **portfolio analysis**.

- For **each quarter**, we **sort** sample firms into **ten equal-size portfolios** depending on their **level** of comparability, measured at the **end** of each **quarter, with financial reporting information** that is **revealed** and **made public** on **the EA day** (day $\tau = 0$).

- **Each quarter, for each firm** in **each portfolio**, we calculate the **level** of **short- ($\boldsymbol{\sigma_\tau^{ST}}$)** and **long-term ($\boldsymbol{\sigma_\tau^{LT}}$) IV** on day $\tau = 0$, their **changes** around **time windows [-1, -10], [0, -1], [+1, -1], [+1,0], and [+10, +1]** around the event, as well the level of the **TSIV ($\boldsymbol{\beta_0}$),** and **changes** in the **term structure** around these time windows.

- **Portfolio 1** consists of the firms with the **lowest** financial reporting **comparability metric** (i.e**. low comparability**) in all sample quarters, while **Portfolio 10** consists of the firms with the **highest comparability** metric (i.e. **high comparability**) in all sample quarters.

- The statistic ***t-stat*** and ***p-val*** refer to the test (under **the null hypothesis**) that the **means** of **Portfolios 10 and 1** are **equal**.

Table 2 - STIV

Panel A:

IV Means of Acc. Comparability Portfolios	Accounting Comparability metric *AccComp_M1* Accounting Comparability Model 1, De Franco et al. (2011)					
	σ_0^{ST}	$\Delta\sigma_{[-1,-10]}^{ST}$	$\Delta\sigma_{[0,-1]}^{ST}$	$\Delta\sigma_{[+1,-1]}^{ST}$	$\Delta\sigma_{[+1,0]}^{ST}$	$\Delta\sigma_{[+10,+1]}^{ST}$
1-Lowest Acc. Comparability	0.5593	0.0079	-0.0134	-0.0298	-0.0164	-0.0054
2	0.5781	0.0058	-0.0123	-0.0357	-0.0234	-0.0030
3	0.5628	0.0083	-0.0109	-0.0353	-0.0244	-0.0062
4	0.5489	0.0075	-0.0094	-0.0331	-0.0237	-0.0042
5	0.5316	0.0080	-0.0097	-0.0353	-0.0255	-0.0058
6	0.4995	0.0099	-0.0115	-0.0367	-0.0252	-0.0053
7	0.4607	0.0089	-0.0106	-0.0377	-0.0271	-0.0059
8	0.4246	0.0094	-0.0113	-0.0392	-0.0279	-0.0062
9	0.3905	0.0095	-0.0094	-0.0357	-0.0263	-0.0075
10-Highest Acc. Comparability	0.3561	0.0103	-0.0076	-0.0272	-0.0196	-0.0106
t-stat (Portf. 10 – Portf. 1)	-68.25***	1.61	4.51***	1.77*	-2.38**	-3.44***
p-val (Portf. 10 – Portf. 1)	0.0000	0.1068	0.000	0.0769	0.0175	0.0005

Table 2 - STIV

Panel B:

IV Means of Acc. Comparability Portfolios	Accounting Comparability metric *AccComp_M2* Accounting Comparability Model 2, Basu (1997)					
	σ_0^{ST}	$\Delta\sigma_{[-1,-10]}^{ST}$	$\Delta\sigma_{[0,-1]}^{ST}$	$\Delta\sigma_{[+1,-1]}^{ST}$	$\Delta\sigma_{[+1,0]}^{ST}$	$\Delta\sigma_{[+10,+1]}^{ST}$
1-Lowest Acc. Comparability	0.5853	0.0080	-0.0133	-0.0297	-0.0164	-0.0058
2	0.6047	0.0083	-0.0097	-0.0346	-0.0249	-0.0060
3	0.5859	0.0074	-0.0102	-0.0348	-0.0246	-0.0053
4	0.5579	0.0082	-0.0099	-0.0344	-0.0245	-0.0045
5	0.5208	0.0078	-0.0102	-0.0348	-0.0246	-0.0047
6	0.4838	0.0076	-0.0111	-0.0368	-0.0257	-0.0054
7	0.4401	0.0087	-0.0119	-0.0377	-0.0258	-0.0053
8	0.4028	0.0094	-0.0109	-0.0381	-0.0272	-0.0057
9	0.3810	0.0103	-0.0108	-0.0365	-0.0256	-0.0076
10-Highest Acc. Comparability	0.3570	0.0101	-0.0078	-0.0287	-0.0209	-0.0104
t-stat (Portf. 10 – Portf. 1)	-74.97***	1.37	4.37***	0.74	-3.34***	-3.04***
p-val (Portf. 10 – Portf. 1)	0.0000	0.1702	0.000	0.4598	0.0009	0.0024

Table 3 - LTIV

Panel A:

IV Means of Acc. Comparability Portfolios	Accounting Comparability metric *AccComp_M1* Accounting Comparability Model 1, De Franco et al. (2011)					
	σ_0^{LT}	$\Delta\sigma_{[-1,-10]}^{LT}$	$\Delta\sigma_{[0,-1]}^{LT}$	$\Delta\sigma_{[+1,-1]}^{LT}$	$\Delta\sigma_{[+1,0]}^{LT}$	$\Delta\sigma_{[+10,+1]}^{LT}$
1-Lowest Acc. Comparability	0.5360	0.0030	-0.0044	-0.0078	-0.0034	0.0014
2	0.5390	0.0035	-0.0024	-0.0078	-0.0054	0.0032
3	0.5271	0.0033	-0.0020	-0.0060	-0.0040	0.0013
4	0.5097	0.0025	-0.0010	-0.0053	-0.0043	0.0025
5	0.4935	0.0025	-0.0001	-0.0043	-0.0041	0.0014
6	0.4564	0.0033	-0.0020	-0.0054	-0.0033	0.0014
7	0.4103	0.0017	-0.0025	-0.0064	-0.0038	0.0013
8	0.3750	0.0017	-0.0026	-0.0066	-0.0040	0.0009
9	0.3476	0.0012	-0.0015	-0.0058	-0.0042	0.0007
10-Highest Acc. Comparability	0.3118	0.0008	-0.0020	-0.0050	-0.0030	0.0006
t-stat (Portf. 10 – Portf. 1)	-59.89***	-1.85*	2.49**	2.63***	0.43	-0.73
p-val (Portf. 10 – Portf. 1)	0.0000	0.0644	0.0129	0.0085	0.6700	0.4663

Table 3 - LTIV

Panel B:

IV Means of Acc. Comparability Portfolios	Accounting Comparability metric *AccComp_M2* Accounting Comparability Model 2, Basu (1997)					
	σ_0^{LT}	$\Delta\sigma_{[-1,-10]}^{LT}$	$\Delta\sigma_{[0,-1]}^{LT}$	$\Delta\sigma_{[+1,-1]}^{LT}$	$\Delta\sigma_{[+1,0]}^{LT}$	$\Delta\sigma_{[+10,+1]}^{LT}$
1-Lowest Acc. Comparability	0.5632	0.0042	-0.0053	-0.0080	-0.0028	0.0016
2	0.5609	0.0022	-0.0014	-0.0067	-0.0053	0.0009
3	0.5475	0.0040	-0.0010	-0.0059	-0.0048	0.0029
4	0.5204	0.0035	-0.0016	-0.0062	-0.0046	0.0022
5	0.4779	0.0023	-0.0017	-0.0053	-0.0037	0.0025
6	0.4449	0.0020	-0.0024	-0.0056	-0.0032	-0.0002
7	0.3943	0.0024	-0.0025	-0.0059	-0.0035	0.0024
8	0.3551	0.0017	-0.0021	-0.0066	-0.0045	0.0013
9	0.3391	0.0010	-0.0019	-0.0057	-0.0038	0.0006
10-Highest Acc. Comparability	0.3138	0.0009	-0.0018	-0.0052	-0.0033	0.0006
t-stat (Portf. 10 – Portf. 1)	-65.88***	-2.76***	3.64***	2.72***	-0.69	-0.93
p-val (Portf. 10 – Portf. 1)	0.0000	0.0058	0.0003	0.0066	0.4913	0.3536

Table 4 - TSIV

Panel A:

TSIV Means of Acc. Comparability Portfolios	Accounting Comparability metric *AccComp_M1* Accounting Comparability Model 1, De Franco et al. (2011)					
	β_0	$\Delta\beta_{[-1,-10]}$	$\Delta\beta_{[0,-1]}$	$\Delta\beta_{[+1,-1]}$	$\Delta\beta_{[+1,0]}$	$\Delta\beta_{[+10,+1]}$
1-Lowest Acc. Comparability	-0.0859	-0.0149	0.0185	0.0424	0.0238	0.0094
2	-0.0823	-0.0057	0.0169	0.0494	0.0325	0.0061
3	-0.0859	-0.0077	0.0157	0.0517	0.0360	0.0088
4	-0.0884	-0.0090	0.0129	0.0505	0.0376	0.0099
5	-0.0884	-0.0145	0.0155	0.0567	0.0413	0.0107
6	-0.0825	-0.0149	0.0175	0.0601	0.0425	0.0091
7	-0.0837	-0.0137	0.0143	0.0568	0.0425	0.0107
8	-0.0833	-0.0153	0.0143	0.0583	0.0439	0.0090
9	-0.0865	-0.0146	0.0120	0.0535	0.0415	0.0132
10-Highest Acc. Comparability	-0.0965	-0.0159	0.0110	0.0420	0.0310	0.0214
t-stat (Portf. 10 – Portf. 1)	-3.12***	-0.29	-2.47**	-0.11	2.23**	3.81***
p-val (Portf. 10 – Portf. 1)	0.0018	0.7720	0.0136	0.9112	0.0255	0.0001

Table 4 - TSIV

Panel B:

TSIV Means of Acc. Comparability Portfolios	Accounting Comparability metric *AccComp_M2* Accounting Comparability Model 2, Basu (1997)					
	β_0	$\Delta\beta_{[-1,-10]}$	$\Delta\beta_{[0,-1]}$	$\Delta\beta_{[+1,-1]}$	$\Delta\beta_{[+1,0]}$	$\Delta\beta_{[+10,+1]}$
1-Lowest Acc. Comparability	-0.0831	-0.0134	0.0202	0.0419	0.0217	0.0098
2	-0.0871	-0.0104	0.0163	0.0476	0.0313	0.0089
3	-0.0887	-0.0094	0.0108	0.0487	0.0379	0.0087
4	-0.0874	-0.0116	0.0161	0.0550	0.0390	0.0103
5	-0.0850	-0.0099	0.0160	0.0567	0.0407	0.0082
6	-0.0847	-0.0145	0.0154	0.0586	0.0431	0.0098
7	-0.0829	-0.0103	0.0148	0.0568	0.0419	0.0088
8	-0.0839	-0.0149	0.0151	0.0583	0.0433	0.0112
9	-0.0844	-0.0164	0.0121	0.0537	0.0415	0.0133
10-Highest Acc. Comparability	-0.0966	-0.0165	0.0117	0.0434	0.0317	0.0204
t-stat (Portf. 10 – Portf. 1)	-4.02***	-0.90	-2.84***	0.46	3.14***	3.43***
p-val (Portf. 10 – Portf. 1)	0.0000	0.3709	0.0046	0.6482	0.0017	0.0006

Findings - Portfolio Analysis

- The **level** of **IV significantly decreases** as **comparability increases** for firms **on** the **day** of EA: **comparability significantly mitigates investor uncertainty**, as the latter is **manifested** through **IV,** on the **day** of the **information-rich** event of the **publication** of **earnings**.

- **Changes** in **IV before** the **event** are **stronger** for **more,** as opposed to for **less comparable** firms: **market participants** may consider **EA** events **not** to be **able** to **reveal information** that could help them **resolve** their **uncertainty** if firms are **little comparable**

- **Post-event**, **stronger volatility decreases** for **more comparable** firms confirm **expectations** that **EA** are considered by **market participants more informationally rich** events for **higher,** compared to **lower comparability firms - information** from the **publication** of **earnings** is **incorporated** by traders for **uncertainty resolution more intensely** if firms are **more comparable** to their **peers**.

- Results on **levels** and **changes** in **IV** are slightly **stronger** for **LTIV**, consistent with **greater sensitivity** in the response of **STIV** than LTIV to the announcement of **earnings.**

- **More comparable** firms possess **flatter TSIV** curves on **EA** day; **post-event, TSIV slope** becomes **more positive/steeper** for **higher comparability portfolios**, consistent with **stronger decreases** in **STIV after EA/ effect** in **TSIV slope** stemming from **ST**.

Regression Analysis

Baseline model specification (Equation 10)

$$\sigma_0^{ST} \ or \ \sigma_0^{LT} \ or \ \Delta\sigma_{[-n,+n]}^{ST} \ or \ \Delta\sigma_{[-n,+n]}^{LT}$$
$$= \delta_0 + \delta_1 AccComp\_M1_{i,t} (or \ AccComp\_M2_{i,t}) + \sum_p \xi_p Controls_{p,i,t}$$
$$+ \sum_m \varphi_m Fixed \ Effects_m + v_{i,t}$$

Control variable selection mainly follows from **Kim et al. (2016),** who examine the association between accounting comparability and stock price crash risk.

Regression Analysis (1)

- **Firm size** (which may affect **firms' stock price volatility**; Pástor and Veronesi, 2003; Kim et al., 2016);

- **Stock market performance**, together with measures of its **skewness** and **volatility** during the **previous year**, given that **past return behavior** has been shown to **associate** with **IV** (Bradshaw et al., 2010; Van Buskirk, 2011; Kim et al, 2016);

- **Market beta** as a measure of **market risk,** which may relate with **IV behavior** (e.g., Dennis and Mayhew, 2002; Duan and Wei, 2009; Bradshaw et al., 2010);

- **Measures** of **uncertainty** about firms' **profitability** in the form of the **standard deviation** of **cash flows, sales** and **earnings** because such **uncertainty** may reflect on the **volatility** of **returns** (Pástor and Veronesi, 2003; Kim et al., 2016);

- **Stock trading volume** in the form of a measure for the **heterogeneity** of beliefs **among investors** (Kim et al., 2016), given evidence that this volume associated with **negative stock return skewness** (Hong and Stein, 2003).

Table 5 - OLS estimation results of baseline model specification (eq. 10), when the accounting comparability proxy is given by Model 1, $AccComp\_M1_{i,t}$

Panel A: Short-term implied volatility (STIV)

Independent variables	Dependent variable: STIV					
	σ_0^{ST}	$\Delta\sigma_{[-1,-10]}^{ST}$	$\Delta\sigma_{[0,-1]}^{ST}$	$\Delta\sigma_{[+1,-1]}^{ST}$	$\Delta\sigma_{[+1,0]}^{ST}$	$\Delta\sigma_{[+10,+1]}^{ST}$
$\boldsymbol{AccComp\_M1_{i,t}}$	**-0.0914***** **(0.0173)**	**0.0065** **(0.0082)**	**0.0132*** **(0.0068)**	**-0.0383***** **(0.0076)**	**-0.0513***** **(0.0068)**	**-0.0443***** **(0.0097)**
$Size_{i,t}$	-0.0657*** (0.0004)	0.0003 (0.0002)	-0.0032*** (0.0002)	-0.0036*** (0.0002)	-0.0003 (0.0002)	0.0007*** (0.0002)
$Return_{i,t}$	-0.0003 (0.0010)	0.0002 (0.0006)	-0.0007 (0.0005)	-0.0011** (0.0005)	-0.0005 (0.0005)	0.0010* (0.0006)
$Std(Return)_{i,t}$	0.0252*** (0.0060)	-0.0015 (0.0034)	0.0096*** (0.0028)	-0.0013 (0.0031)	-0.0108*** (0.0029)	-0.0072 (0.0033)
$Skew(Return)_{i,t}$	-0.0004 (0.0008)	-0.0004 (0.0004)	-0.0007** (0.0003)	-0.0009** (0.0004)	-0.0001 (0.0004)	0.0005 (0.0004)
$StockVolume_{i,t}$	-0.0001 (0.0002)	0.0001 (0.0001)	0.0000 (0.0001)	0.0002* (0.0001)	0.0002 (0.0002)	-0.0003** (0.0001)
$Beta_{i,t}$	0.0711*** (0.0009)	0.0005 (0.0004)	-0.0008** (0.0004)	-0.0059*** (0.0004)	-0.0050*** (0.0004)	-0.0007 (0.0005)
$Std(CFO/TA)_{i,t}$	0.4806*** (0.0386)	0.0464*** (0.0173)	-0.0416*** (0.0125)	-0.0676*** (0.0142)	-0.0223* (0.0125)	-0.0300* (0.0172)
$Std(NIBE/TA)_{i,t}$	0.2954*** (0.0357)	-0.0089 (0.0058)	0.0100** (0.0040)	0.0264*** (0.0056)	0.0170*** (0.0051)	0.0049 (0.0058)
$Std(Sales/TA)_{i,t}$	0.0007** (0.0003)	0.0003** (0.0002)	-0.0004*** (0.0001)	-0.0002* (0.0001)	0.0001 (0.0001)	0.0001 (0.0001)
Intercept	1.3216*** (0.0405)	0.0138 (0.0169)	0.0417*** (0.0139)	0.0522*** (0.0156)	0.0065 (0.0118)	-0.0427** (0.0174)
Year Fixed Effects	YES	YES	YES	YES	YES	YES
Industry Fixed Effects	YES	YES	YES	YES	YES	YES
N	103,066	103,066	103,066	103,066	103,066	103,066
R^2	0.5621	0.0345	0.0228	0.0653	0.0463	0.0496

Table 5 - OLS estimation results of baseline model specification (eq. 10), when the comparability proxy is given by Model 1, $AccComp\_M1_{i,t}$

Panel B: Long-term implied volatility (LTIV)

Independent variables	Dependent variable: LTIV					
	σ_0^{LT}	$\Delta\sigma_{[-1,-10]}^{LT}$	$\Delta\sigma_{[0,-1]}^{LT}$	$\Delta\sigma_{[+1,-1]}^{LT}$	$\Delta\sigma_{[+1,0]}^{LT}$	$\Delta\sigma_{[+10,+1]}^{LT}$
$\boldsymbol{AccComp\_M1_{i,t}}$	**-0.0511***	**0.0146****	**0.0077***	**0.0015**	**-0.0076***	**-0.0019**
	(0.0267)	**(0.0072)**	**(0.0047)**	**(0.0050)**	**(0.0046)**	**(0.0067)**
$Size_{i,t}$	-0.0567***	-0.0007***	-0.0006***	-0.0003**	0.0003***	0.0005***
	(0.0005)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0002)
$Return_{i,t}$	0.0004	0.0004	0.0001	-0.0003	-0.0004*	-0.0001
	(0.0012)	(0.0004)	(0.0003)	(0.0003)	(0.0003)	(0.0004)
$Std(Return)_{i,t}$	0.0172**	-0.0004	0.0016	-0.0008	-0.0018	-0.0031
	(0.0069)	(0.0021)	(0.0015)	(0.0019)	(0.0016)	(0.0023)
$Skew(Return)_{i,t}$	-0.0014	-0.0005*	-0.0002	0.0002	0.0003*	0.0002
	(0.0009)	(0.0003)	(0.0002)	(0.0002)	(0.0002)	(0.0003)
$StockVolume_{i,t}$	-0.0004	0.0001	0.0000	0.0001*	0.0001*	-0.0001
	(0.0003)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
$Beta_{i,t}$	0.0719***	-0.0005*	-0.0001	-0.0007***	-0.0006**	-0.0005
	(0.0011)	(0.0003)	(0.0002)	(0.0003)	(0.0002)	(0.0003)
$Std(CFO/TA)_{i,t}$	0.5831***	0.0172	-0.0128	-0.0118	0.0049	-0.0070
	(0.0470)	(0.0136)	(0.0085)	(0.0105)	(0.0094)	(0.0143)
$Std(NIBE/TA)_{i,t}$	0.2247***	-0.0039	0.0014	0.0078**	0.0060**	-0.0027
	(0.0347)	(0.0037)	(0.0023)	(0.0030)	(0.0027)	(0.0039)
$Std(Sales/TA)_{i,t}$	0.0013**	-0.0003	-0.0001	0.0001	0.0002	-0.0001
	(0.0006)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0002)
Intercept	1.1207***	0.0265	0.0242	0.0284	-0.0004	-0.0363***
	(0.0891)	(0.0200)	(0.0181)	(0.0193)	(0.0065)	(0.0114)
Year Fixed Effects	YES	YES	YES	YES	YES	YES
Industry Fixed Effects	YES	YES	YES	YES	YES	YES
N	99,835	99,835	99,835	99,835	99,835	99,835
R^2	0.6210	0.0541	0.0111	0.0224	0.0145	0.0769

Findings - Regression Analysis

- **Accounting comparability negatively** and **significantly** associates with the **level** of **STIV** and **LTIV** on the day of **EA**, while this result is **more strongly statistically** (at 1% vs. 10% level) and **economically significant** ($AccComp\_M1_{i,t}$ coefficient value of -0.0914 vs. -0.0511) for **STIV**, compared to **LTIV.**

- Regarding **changes** in **IV** dependent variable specifications, we observe that **comparability** is **positively** (**negatively**) associated with **changes** in **STIV** and **LTIV before** (**after**) the **announcement**, while results are again **statistically** and **economically stronger** for **STIV** compared to **LTIV** equations.

- **Results** are also **confirmed** for our **second** accounting comparability **proxy** (that is based on **Basu, 1997** - **Table 6, Panel A** for **STIV** and **Panel B** for **LTIV**).

- Past research has provided **evidence** on **differential options market reaction** depending on whether firms announce **good** or **bad** news in **EA** (Rogers et al., 2009; Truong et al., 2012): **positive earnings surprises** and **profit announcements** trigger **higher uncertainty resolution** compared to **negative surprises** and the announcements of **losses**).

- We observe from **Table 7** that our results **do not** show important differentiation depending on whether **earnings surprises** around **EA** are **positive** or **negative**.

Controlling for endogeneity

- Our findings could be subject to **endogeneity concerns** arising from **elements** that could have an **impact** on **accounting comparability** but are **not adequately controlled** in our models, e.g., stemming from **differences** in **observable characteristics** between firms with **high** and **low** levels of **comparability** (e.g., firms reporting **more comparably** are **systematically different** from firms reporting **less comparably** in **fundamental ways**).

- To ensure that our **results** are **not driven** by such misspecification, we apply **<u>entropy balancing</u>**, which **weights** each **observation** such that the **post-weighting distribution properties** of **treatment** and **control** samples are **equal,** to ensure covariate balance (Hainmueller, 2012).

- We consider firms with accounting **comparability above** (**below**) the **sample-quarter-year median** as **treated** (**control**) firms and report our **entropy balancing matching estimation,** that ensures **better covariate balance** between **treatment** (**High Accounting Comparability**) and **control** (**Low Accounting Comparability**) groups (using the **control variables** of **eq. (10)** as **covariates** for **matching**) in **Table 8**.

Table 8 - OLS estimation results of our baseline model specification (eq. 10) after entropy balancing

Panel A: Differences in Observables (covariates) before Entropy Balancing, when Treated and Control firms are determined by Model 1, $AccComp\_M1_{i,t}$

Covariates	Mean Treated	Mean Control	Diff.	Variance Treated	Variance Control	Diff.	Skewness Treated	Skewness Control	Diff.
$Size_{i,t}$	14.26	13.00	1.26	3.165	3.565	-0.400	0.0362	0.1729	-0.1367
$Return_{i,t}$	0.0987	0.1017	-0.003	0.2794	0.2883	-0.0089	0.3969	0.3954	0.0015
$Std(Return)_{i,t}$	0.1346	0.1374	-0.0028	0.0095	0.0095	0.0000	1.907	1.873	0.034
$Skew(Return)_{i,t}$	0.2504	0.2658	-0.0154	0.5784	0.5705	0.0079	0.2252	0.2232	0.002
$StockVolume_{i,t}$	14.56	14.52	0.04	5.487	5.234	0.253	-0.1139	-0.1446	0.0307
$Beta_{i,t}$	1.081	1.453	-0.372	0.4751	0.8792	-0.4041	1.0400	0.8937	0.1463
$Std(CFO/TA)_{i,t}$	0.0200	0.0365	-0.0165	0.0006	0.0027	-0.0021	8.422	7.834	0.588
$Std(NIBE/TA)_{i,t}$	0.0128	0.0547	-0.0419	0.0005	0.0217	-0.0212	11.18	14.19	-3.01
$Std(Sales/TA)_{i,t}$	0.4352	0.8786	-0.4434	14.32	36.07	-21.75	24.68	14.94	9.74

Panel B: Differences in Observables (covariates) after Entropy Balancing, when Treated and Control firms are determined by Model 2, $AccComp\_M2_{i,t}$

Covariates	Mean Treated	Mean Control	Diff.	Variance Treated	Variance Control	Diff.	Skewness Treated	Skewness Control	Diff.
$Size_{i,t}$	14.26	14.25	0.01	3.165	3.393	-0.228	0.0362	-0.0525	0.0887
$Return_{i,t}$	0.0987	0.0987	0.00	0.2794	0.2766	0.0028	0.3969	0.4363	-0.0394
$Std(Return)_{i,t}$	0.1346	0.1347	-0.0001	0.0095	0.0092	0.0003	1.907	1.959	-0.052
$Skew(Return)_{i,t}$	0.2504	0.2505	-0.0001	0.5784	0.5673	0.0111	0.2252	0.2244	0.0008
$StockVolume_{i,t}$	14.56	14.56	0.00	3.165	3.393	-0.228	-0.1139	-0.1494	0.0355
$Beta_{i,t}$	1.081	1.081	0.00	0.4751	0.4870	-0.0119	1.0400	0.8144	0.2256
$Std(CFO/TA)_{i,t}$	0.0200	0.0200	0.00	0.0006	0.0005	0.0001	8.422	4.125	4.297
$Std(NIBE/TA)_{i,t}$	0.0128	0.0129	-0.0001	0.0005	0.0002	0.0003	11.18	2.988	8.192
$Std(Sales/TA)_{i,t}$	0.4352	0.4370	-0.0018	14.32	22.41	-8.09	24.68	21.91	2.77

Although **observations** appear to be **really different** (in terms of the matching covariates) **before** applying this method, **differences** in **means after** its application are **virtually zero** for all covariates.

Table 8 - OLS estimation results of our baseline model specification (eq. 10) after entropy balancing

Panel C: The relationship between accounting comparability (Model 1, $AccComp\_M1_{i,t}$) and IV (short-term and long-term) after Entropy Balancing

	Dependent variable: STIV				*Dependent variable: LTIV*			
Independent variables	σ_0^{ST}	$\Delta\sigma_{[0,-1]}^{ST}$	$\Delta\sigma_{[+1,-1]}^{ST}$	$\Delta\sigma_{[+1,0]}^{ST}$	σ_0^{LT}	$\Delta\sigma_{[0,-1]}^{LT}$	$\Delta\sigma_{[+1,-1]}^{LT}$	$\Delta\sigma_{[+1,0]}^{LT}$
AccComp_M1 $_{i,t}$	**-0.2244***** **(0.0148)**	**0.0034** **(0.0065)**	**-0.0452***** **(0.0072)**	**-0.0493***** **(0.0064)**	**-0.1556***** **(0.0185)**	**0.0006** **(0.0036)**	**-0.0244***** **(0.0040)**	**-0.0249***** **(0.0036)**
Controls	YES	YES	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
Industry Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
N	103,066	103,066	103,066	103,066	93,929	93,929	93,929	93,929
R^2	0.5351	0.0265	0.0793	0.0527	0.5953	0.0126	0.0278	0.0187

Panel D: The relationship between accounting comparability (Model 2, $AccComp\_M2_{i,t}$) and IV (short-term and long-term) after Entropy Balancing

	Dependent variable: STIV				*Dependent variable: LTIV*			
Independent variables	σ_0^{ST}	$\Delta\sigma_{[0,-1]}^{ST}$	$\Delta\sigma_{[+1,-1]}^{ST}$	$\Delta\sigma_{[+1,0]}^{ST}$	σ_0^{LT}	$\Delta\sigma_{[0,-1]}^{LT}$	$\Delta\sigma_{[+1,-1]}^{LT}$	$\Delta\sigma_{[+1,0]}^{LT}$
AccComp_M2 $_{i,t}$	**-0.2090***** **(0.0139)**	**0.0015** **(0.0061)**	**-0.0445***** **(0.0066)**	**-0.0467***** **(0.0060)**	**-0.1431***** **(0.0171)**	**-0.0011** **(0.0034)**	**-0.0066*** **(0.0039)**	**-0.0062*** **(0.0034)**
Controls	YES	YES	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
Industry Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
N	101,442	101,442	101,442	101,442	93,929	93,929	93,929	93,929
R^2	0.5204	0.0275	0.0820	0.0546	0.5811	0.0136	0.0292	0.0205

Findings - Endogeneity Controls

- The **results** of eq. (10) after employing **entropy balancing** (Hainmueller, 2012) show no **qualitative differences** in **baseline** results for representative time windows.

- Therefore, we conclude that our **main findings** are **not significantly affected** by **endogeneity concerns** stemming from **differences** in **observable characteristics** between firms with **high** and **low** accounting **comparability**.

Supplementary analysis

- We conduct **cross-sectional analyses** to observe whether **differing** levels of **asymmetric information** or **agency** considerations **moderate** our results, as we expect that **comparability** of firms with their **peers** should affect **IV bahavior** for reasons that relate to the **improvement** of firms' **information environment**, with corresponding **repercussions** about **reduced agency problems**.

- We use the magnitude of the **<u>bid-ask spread</u>** as a measure of **information asymmetry** - corresponding **uncertainty** of **market participants** about firm **value** (Krishnaswami et al., 1999; García Lara et al., 2016).

- We further employ the **existence** or not of any **<u>anti-takeover provisions</u>** (based on the entrenchment index (E-index) by Bebchuk et al., 2009), and the **<u>concentration</u>** of **<u>institutional shareholdings</u>** as measures of the **strength** of **outside monitoring**, with repercussions for potential **agency concerns** about managers.

- Finally, we employ **<u>business strategy</u>** (using the composite measure of Bentley et al. (2013), scaled by 100) as an indicator of **business uncertainty** arising from the **aggressiveness** or not of **managerial actions**, depending on whether the firm follows a **prospector-type**, analyser- or **defender-type** of strategy.

Table 9 - Supplementary analysis

Panel A: Short-term implied volatility (STIV)

Independent variables	σ_0^{ST}	σ_0^{ST}	σ_0^{ST}	
$AccComp\_M1_{i,t}$	**-0.0773****	**-0.5569*****	**-0.0612****	**-0.5270*****
	(0.0348)	**(0.0645)**	**(0.0265)**	**(0.1533)**
$BidAskSpread_{i,t}$	**0.0255****			
	(0.0104)			
$BidAskSpread_{i,t} \times AccComp\_M1_{i,t}$	**0.6677*****			
	(0.1339)			
$E - index_{i,t}$		**0.0345*****		
		(0.0012)		
$E - index_{i,t} \times AccComp\_M1_{i,t}$		**0.7476*****		
		(0.0661)		
$InstOwnership_{i,t}$			**0.0350*****	
			(0.0020)	
$InstOwnership_{i,t} \times AccComp\_M1_{i,t}$			**0.0980*****	
			(0.0364)	
$Strategy_{i,t}$				**0.0062*****
				(0.0002)
$Strategy_{i,t} \times AccComp\_M1_{i,t}$				**0.0321*****
				(0.0085)
Controls	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES
Industry Fixed Effects	YES	YES	YES	YES
N	102,769	100,760	89,541	81,489
R^2	0.5641	0.5736	0.5666	0.5501

Table 9 - Supplementary analysis

Panel B: Long-term implied volatility (LTIV)

Independent variables	σ_0^{LT}	σ_0^{LT}	σ_0^{LT}	σ_0^{LT}
$AccComp\_M1_{i,t}$	-0.3281***	-0.6407***	-0.0675*	-0.9010***
	(0.0558)	(0.0796)	(0.0368)	(0.2467)
$BidAskSpread_{i,t}$	0.0332***			
	(0.0122)			
$BidAskSpread_{i,t} \times AccComp\_M1_{i,t}$	1.1137***			
	(0.2015)			
$E - index_{i,t}$		0.0325***		
		(0.0014)		
$E - index_{i,t} \times AccComp\_M1_{i,t}$		0.7179***		
		(0.0834)		
$InstOwnershipConc_{i,t}$			0.0353***	
			(0.0025)	
$InstOwnershipConc_{i,t} \times AccComp\_M1_{i,t}$			0.1206**	
			(0.0525)	
$Strategy_{i,t}$				0.0061***
				(0.0002)
$Strategy_{i,t} \times AccComp\_M1_{i,t}$				0.0395***
				(0.0134)
Controls	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES
Industry Fixed Effects	YES	YES	YES	YES
N	84,550	83,561	87,627	83,707
R^2	0.6230	0.6328	0.6274	0.6168

Findings - Supplementary Analysis

- We observe that the **negative effect** of **accounting comparability on STIV and LTIV** is **weaker** for firms with **higher bid-ask spreads**, **firms** with **no anti-takeover provisions** in place (so less insulated from market monitoring and pressure), and for firms which follow a **more aggressive prospector-type** rather than a **defensive strategy** in their **industry sector**.

- In the presence of factors **negatively** affecting the **informational efficiency** and **market pressure effectiveness** of firms, **comparability** is observed to be **more weakly** able to **decrease market uncertainty** incorporated into investor perceptions reflected into **IV levels** on the day of EA.
- **Institutional** holdings **concentration** makes the **negative** association between **comparability** and **IV weaker**: **counter-intuitive**, given that the intuitive **expectation** that the **strength** of institutions should **increase monitoring**.
- But: **trading** on **IV** can be considered as a **distinct asset class** by **market participants**, depending on the **type** of their **strategies** (Neftci, 2008).
- If so, **institutional ownership** may not work as a pure **monitoring device** but reflect **systematic trading patterns** which could be, e.g., volatility-seeking.

Robustness Analysis

- We repeat our analysis using **alternative ways** to estimate the **STIV** and **LTIV**.

- instead of using the **simple** (call-put) **average IVs** of **ATM** standardized **option** contracts, we employ

(a) the IV from **call** options **only**,
(b) the IV from **put** options **only** and
(c) the **delta-interpolated** (call-put) **IV** (Mixon, 2009) as dependent variables.

- Estimation results are summarized in **Table 10**, and **qualitatively similar** to the results of Tables 5 and 6, albeit slightly **weaker** for STIV and $AccComp\_M2_{i,t}$ as the comparability proxy.

- The results of our robustness analysis seem to **confirm** our findings that **IV** on **EA** days is **negatively** associated with firm accounting c**omparability** to its **peers,** regardless of how **IV** is **estimated**.

Trading strategy

- We examine the **economic significance** of **comparability** on **IV** (over and above its **statistical significance**) via a **trading strategy**.

- Given that our **comparability proxy** is estimated over the **last 4 years** (**16 quarters**) and hence it **changes** over **slightly** from quarter to quarter for each firm, we conduct an **in-sample volatility trading strategy** that characterizes a sample firm as having either **high comparability** (**Portfolio 10** in our portfolio analysis) or **low comparability** (**Portfolio 1**) in **quarter *t***, and **trades** the **short-term options** (**30 days**) of these firms in their **next quarter, *t+1*.**

- That is, **every time** a sample **firm** announces **quarterly earnings**, we **estimate** its accounting **comparability** (using the **last 16 quarters**) and if its **comparability** belongs in the **highest** or **lowest decile** of **comparability** across **all sample** firms **up to this quarter,** we **trade** this firms' **options** (**30-**day **ATM call** and **put**) **before** and **after** the firm's **next quarterly EA**.

Trading strategy (1)

- As we wish to **trade** the **volatility** (**runups** and **rundowns**) of these firms, if a firm belongs in **Portfolio 10** (**most comparable** firms) in a given quarter, we **invest $1000** in a **long** position in **straddles** (**long 30-day ATM call** and **long 30-day ATM put**) on day $\boldsymbol{\tau = -10}$ **before** its **next** quarterly **EA** and **close** this **position** on day $\boldsymbol{\tau = -1}$.

- This **$1000** investment is **financed** by going **short** in the necessary **number** of **straddles** (**short 30-day ATM call** and **short 30-day ATM put**) of a firm that belongs in **Portfolio 1** (**least comparable** firms) on day $\boldsymbol{\tau = -10}$ **before** this firm's **next** quarterly **EA**, and **closing** this position on **day** $\boldsymbol{\tau = -1}$ before its EA.

- Observe that the **long position** in the **straddles** of a **highly comparable** firm and the (**financing**) **short position** in the **straddles** of a **least comparable** firm ***do not take place on the same point in time*** (same day), hence our trading strategy is considered **self-financed** only across **all** sample **quarters** (and by **ignoring** the **time value of money** across quarters).

- In essence, the **strategy** needs **short-term financing between quarters**, but it is **self-financed** across the **entire** (in-sample) **period**.

Trading strategy (2)

- We denote the **above** (**long straddles** of **most comparable firms** and **short straddles** of **least comparable firms**) as **Leg 1** of the **trading strategy,** and it takes place **on days** $[-\mathbf{10}, -\mathbf{1}]$ relative to the involved firms' quarterly **EA**.

- In **Leg 2** of the trading **strategy,** we take **reverse positions** (i.e., **short straddles** of **most comparable firms** and **long straddles** of **least comparable firms**) **after** the **EA** day, i.e., we **initiate** the **straddle** on day $\boldsymbol{\tau} = +\mathbf{1}$ relative to the **EA** of the **same firms**, and **close** it on day $\boldsymbol{\tau} = +\mathbf{10}$.

Table 9 - Trading strategy

	Trading strategy, Leg 1 Long position in a straddle of most comparable firms (Portfolio 10) over the [-10, -1] time window, financed by a short position in a straddle of least comparable firms (Portfolio 1) over the [-10, -1] time window	Trading strategy, Leg 2 Long position in a straddle of least comparable firms (Portfolio 1) over the [+1, +10] time window, financed by a short position in a straddle of most comparable firms (Portfolio 10) over the [+1,+10] time window	Combined strategy Leg 1 and Leg 2 together
Mean profit (across all quarters, in $)	17.62***	1.53	9.41***
Sum of profits (across all quarters, in $)	469,254	42,522	511,776

Notes: The Table reports the mean profit and the sum of all profits (pooled, across all quarters) from the trading strategy. ***, ** and * indicate statistical significance at 1%, 5% and 10% respectively.

Findings - Trading Strategy

- Looking at the **two Legs** of the strategy, it appears that the **significant mean profits** of the **combined strategy** are mainly driven by **Leg 1** (in the $[-\mathbf{10}, -\mathbf{1}]$ window), as **Leg 2** yields statistically **zero mean profits** (in **the** $[+\mathbf{1}, +\mathbf{10}]$ window).

- Our **trading strategy** results establish the **economic significance** of accounting **comparability** on **options prices** around **EA** days.

- It should be stressed that the (mean and total) **trading profits** we report are in the **absence** of any **transaction costs**, hence their level would **only decrease** if one accounted for the **costs** that have to be **incurred** by investors who wish to **execute** the strategy.

- Moreover, our strategy is **not completely self-financed**, hence the reported **profits** might simply be **adequate compensation** for the **risk** taken to **finance** the **strategy** between quarters.

- Even with these considerations in mind, our **findings** in this study seem to suggest that **accounting comparability** is **statistically** and **economically significant** in the **formation** of **option prices** in the **days** that **surround quarterly EA**.

Conclusions

- Using **US** data between **1996-2021**, we report that firms with **higher (lower)** accounting **comparability** to their **industry peers** experience significantly **lower (higher) STIV** and **LTIV** on quarterly **EA** days.

- **Increases** in **IV** before the event are found to be **stronger** for **more**, as opposed to **less comparable** firms, while this **trend** is found to **reverse** after the event.

- This is consistent with **stronger uncertainty resolution** for **more comparable** or **easier** to relatively **evaluate**, firms, as opposed to firms with **less comparable** financial reporting practices with the ones of their **peers,** thanks to **EA**.

- Looking at the **TSIV**, our results are consistent with **stronger increases** in **STIV** and **larger decreases** in **STIV before (after) EA**, for firms with **lower (higher) comparability**, with a corresponding effect on the **slope** of the **TSIV** stemming from the **ST** end of the **term structure**.

Conclusions (1)

- **Regression** analysis confirms the above findings by observing that **comparability negatively** and significantly associates with the **level** of **STIV** and **LTIV** on the **day** of the event, and **positively (negatively)** associates with the **changes** in **STIV** and **LTIV before (after)** the announcement, while results are **stronger** for **STIV** vs. **LTIV.**

- Our **supplementary analysis** reveals that the **negative** effect of accounting **comparability** on **STIV** and **LTIV** is **weaker** for firms with **higher bid-ask spreads**, firms with **no anti-takeover provisions** in place (so **less insulated** from market **monitoring** and **pressure**), and for firms which follow a **more aggressive prospector-type** rather than a **defensive** strategy in their industry sector.

- We **interpret** these results as **indicative** of the **mitigating effect** of **comparability** on **IV** becoming **weaker** when factors **aggravating information asymmetry**, **adverse selection**, possible **strength** of **monitoring**, and also **managerial risk-seeking behaviors**, are **stronger**.

Conclusions (2)

- Finally, to examine the **economic significance** of our **findings,** we implement an **in-sample volatility-based trading strategy** around the days of **EA**.

- This **trading strategy** produces **significant positive mean profits,** across **all** sample **quarters,** overall establishing the **economic significance** of accounting **comparability** in the **options** market.

- Overall, our **evidence** indicates that accounting **comparability** (a financial **reporting characteristic** that **enables** firm **comparisons**, rather than reflect **stand-alone firm performance)** has a **significant statistical** and **economic** effect on the **formulation** of **forward-looking options** market **expectations**.

Contribution

- **Examine** and **show** for the first time, that a **financial reporting attribute** with a particular focus on **aiding** the **relative valuation** of firms reflects into the **market perceptions** of **short-** and **long-term** (and also **relative short- vs. long-term**) **uncertainty** of the **most sophisticated** market **participants,** as is the case with **options market traders**.

- Also contribute to **research** on the **implementation** of **trading strategies** using **accounting information**, with reference to the **profit impact** of a **financial reporting characteristic reflective** of the **relevant accounting quality** facilitating **relative valuation** (Piotroski, 2000; Kim and Lee, 2014).

- show that a **self-financed**, **volatility-based strategy** based on **comparability** can lead to **significant mean profits** (at least in the **absence** of **transaction costs**), building on a **limited**, but important line of **research** providing evidence that **financial reporting** attributes can be used for the **extraction** of **trading signals**.
- our study provides first-time evidence about the **statistical** and **economic effect** on the **formulation** of **forward-looking market expectations** for a financial reporting **attribute** that **enables among-firm comparisons**.