Appendix 1: Details of the SGX Research Incentive Scheme

Panel A: Operational features of the Scheme (extracted from Singapore Exchange, 2003a)

Eligibility to join the Scheme

Companies	Listed on SGX Mainboard or on SGX Sesdaq (now SGX CATALIST)
Research firms	Meet all of the following conditions: (i) Licensed or exempted from licensing under the Financial Advisers Act (FAA) (ii) Have an established track record in issuing or promulgating analyses or reports concerning securities (iii) Have a research team comprising at least three analysts, each with at least three years of relevant experience

Requirements for research firms on the frequency and content of research reports on sponsored companies

	Initiation	Coverage	Update
Minimum Frequency and Timing	1 report within 5 (later extended to 6) months of company allocation	2 reports, corresponding to the half- and full-year result announcements	2 reports issued at any time
Minimum Content	Company background, identification and discussion of risks, analysis of recent financials, peer group analysis, valuation and recommendation	Analysis of results and analyst's view of outlook, valuation and recommendation	Description of trigger event(s) for the update, analysis of the effects of such event(s) on the company's outlook, valuation and recommendation
Quality	Flexible presentation style, but of a similar standard of quality to those issued for voluntarily followed firms		

Panel B: Sample distribution of analyst reports issued under the Scheme

Year	Number of reports	Number of firms	Number of brokers	Number of forecasts	% of reports with forecasts	Number of pages
2004	497	61	9	479	0.96	5.45
2005	827	95	12	791	0.96	4.95
2006	991	154	13	973	0.98	6.13
2007	840	150	12	819	0.98	5.18
Total	3,155	154	13	3,062	0.97	5.46

Panel C: Research firms participating in the Scheme

Broker code	Broker name	Number of firms	Number of reports	Average number of pages per report
BNP	BNP Paribas Peregrine Securities	6	48	4.04
CIMB	CIMB-GK Research	14	125	4.50
CLSA	CLSA (Singapore)	30	233	2.76
DBS	DBS Vickers Research	51	539	4.75
DMG	DMG & Partners Securities	19	225	7.26
KIM ENG	Kim Eng Research	22	250	4.78
NRA	NRA Capital	45	350	4.60
OCBC	OCBC Investment Research	38	487	6.65
PHILLIP	Phillip Securities Research	40	355	5.89
SIAS	SIAS Research	33	153	7.18
SP	Standard & Poor's	13	48	3.63
UOB	UOB Kay Hian Research	35	193	6.87
WESTCOMB	Westcomb Securities	24	148	5.99

Appendix 2: Variable Definitions

Dependent variables:

FE	forecast error, computed as (forecast earnings - actual earnings)/stock price at the beginning of the fiscal year
ABSFE	absolute value of FE
CAR(REV) or CAR(ERN)	cumulative abnormal returns in the three-day (-1, 1) window around the forecast revision date CAR(REV), or the earnings announcement date CAR(ERN)). Abnormal return is computed using the market model estimated with daily stock and market returns in the (-100, -10) window prior to the event. Market returns are based on the Straits Times Index.
ABS_CAR(ERN)	absolute value of CAR(ERN)
ABVOL(REV) or ABVOL(ERN)	cumulative abnormal trading volume in the (-1, 1) window around the forecast revisions date, ABVOL(REV) or earnings announcement date (ABVOL(ERN)). Abnormal volume is computed as the share volume minus the mean daily volume in the (-100, -10) window prior to the event, scaled by the mean daily volume.
SYNC	stock price synchronicity, measured as the logarithmic transformation of $R^2/(1 - R^2)$, where R^2 is the R-squared from the market model, estimated using weekly stock and market returns over a calendar year, provided that there are a minimum of 30 weekly observations available in the year (on average, 52 weeks used)
MEDIA	media coverage, measured as the number of media mentions in a calendar year for a company name appearing in either the heading or the lead paragraph in any news source in the Factiva database
IPT	decile rank of the timeliness of earnings, where timeliness is calculated as $\sum_{m=1}^{11}\left(BH_m/BH_{12}\right)+0.5$, and BH_m is the buy-and-hold return from the beginning of the fiscal year to the end of month m
SPREAD	relative quoted spread, calculated as the daily average quoted spread, scaled by the midpoint of bid and ask prices
DEPTH	quoted depth, equal to the natural log of the daily average dollar value of shares available to trade at the best bid and ask prices over the calendar year
VOLUME	trading volume, equal to the natural log of the average daily value of shares traded
AMIHUDP	Amihud's measure of the price impact of trades, calculated as the absolute daily return divided by daily share volume, multiplied by 1,000,000, and then averaged over the calendar year

Variables of interest:

SGXSP	(firm level) dummy variable for SGX-sponsored firms, taking the value 1 if the firm is an SGX-sponsored firm, and 0 otherwise
SPONSOR	(year level) dummy variable, taking the value 1 if the firm-year observation relates to an SGX-sponsored firm, and 0 otherwise
$\widehat{SPONSOR}$	the predicted value of SPONSOR from the probit regression of Equation 1(a)

POST	dummy variable taking the value 0 if it is before the SGX Scheme, and 1 otherwise

Independent variables:

ABSRET	absolute value of stock returns in the previous calendar year
ABSREV	absolute value of REV
DOWN	indicator variable, equal to 1 if the forecast is a downward revision
ECHG	absolute value of earnings change, deflated by total assets
EPS	earnings per share
HORIZON	number of days between forecasts and earnings announcement dates, scaled by 365
INTANGIBLE	ratio of intangible assets to total assets
ISSUE	dummy variable, equal to 1 for firms issuing new equity in the fiscal year
KURT	kurtosis of weekly returns in the previous calendar year
LEV	ratio of total liabilities to total assets
LOSS	dummy variable, equal to 1 if the firm reports negative operating earnings
MB	market-to-book ratio
PRICE	natural log of average stock price over the calendar year
MSCI	dummy variable for firms included in the Morgan Stanley Capital International country index
N_ANALYSTS	number of analysts issuing forecasts for the firms
RETURN	raw stock return in the past calendar year
REV	difference between the new and the previous forecast issued by the same analyst for the same firm, scaled by the stock price at the beginning of the fiscal year
ROE	return on equity, calculated as net income divided by common shareholders' equity
RSQ	R-squared from the market model, estimated from the daily returns in the previous calendar year
SIZE	natural log of total assets (in thousands of dollars)
SKEW	skewness of weekly returns in the previous calendar year
VOLATILITY	standard deviation of monthly stock returns in the previous calendar year

Appendix 3: Self-Selection Issues

A3.1 Prediction regressions of analyst coverage and sponsored firms

The SGX Scheme setting involves sequential self-selection. In a first step, analysts choose the firms on which to provide research coverage, and in the next step, firms that do not attract voluntary analyst coverage self-select to join the Scheme. Analyses that ignore the first-stage self-selection could be potentially biased, as although all firms are observed in the first selection stage by analysts, only a censored sample of firms (viz., those that fail to attract voluntary analyst coverage) are included in the second stage analysis. If unobservable determinants of selection in the first-stage were correlated with those in the second stage, then analyses ignoring this correlation would be biased (Arendt and Holm 2006). We check for this potential bias by simultaneously estimating the following Probit regressions and testing for correlation between the residuals in the two equations:[1]

$$\Pr(\text{NO\_ANALYST}_{it}=1) = \Omega(\alpha_0 + \boldsymbol{Y}_{it} + \text{YEAR FIXED-EFFECTS} + e_{it}) \quad \text{(A1)}$$

$$\Pr(\text{SPONSOR}_{it}=1) = \Omega(\alpha_0 + \boldsymbol{Z}_{it} + \text{YEAR FIXED-EFFECTS} + e_{it}) \quad \text{(A2)}$$

where NO_ANALYST_{it} takes the value 1 for firms that are not voluntarily covered by analysts and 0 for firms with analyst coverage; SPONSOR_{it} is a firm-year specific dummy variable taking the value 1 for firms that join the SGX Scheme, and the value of 0 for firms without analyst following; $\boldsymbol{Y_{it}}$ and $\boldsymbol{Z_{it}}$ are vectors of the variables that predict voluntary coverage by analysts and that predict firms joining the sponsorship Scheme, respectively. The predictor variables employed in the regression Equation (A1) are those that previous studies have found to be influential in the choice of analysts to follow a firm voluntarily. The decision to use these variables is based on the argument that an analyst's decision to cover a firm voluntarily is at least partly based on the balance of benefits and costs of initiating coverage (e.g., O'Brien and Bhushan 1990). As the benefits from providing research coverage are greater for firms with greater investor trading interest, information asymmetry and external financing needs, the determinants of analyst-following that we consider are firm-size, market-to-book ratio, trading volume, stock return volatility, correlation of company returns with market returns, stock returns,

[1] We use the 'heckprob' routine in Stata to simultaneously estimate Equations (A1) and (A2).

investments in intangible assets and, equity issuance (e.g., Bhushan 1989; O'Brien and Bhushan 1990; Lang and Lundholm 1996; Barth, Kasznik, and McNichols 2001; Lang, Lins, and Miller 2004). We also employ these variables to predict a firm's choice for joining the SGX Scheme since firms which require more external financing and those which face greater information asymmetry are likely to benefit more from joining the Scheme. Finally, we add firm level membership in the Morgan Stanley Capital International (MSCI) country index in the prediction model for voluntary analyst coverage, in accordance with Ferreira and Matos (2008), who show that institutional investors prefer to invest in firms included in this index, and that a firm's membership in this index is likely to motivate analysts to voluntarily follow that firm.

Table A1 presents the results from estimating Equations A1 and A2, using observations from the sample period 2004 to 2007. From Column (1), which reports the results for Equation A1, we find that smaller firms and those with lower trading volume, higher return volatility and higher firm-specific information (as proxied by lower R^2 from market model regressions) are more likely to be passed up by analysts when they select firms to follow voluntarily. Firms that have lower stock returns and firms that do not tend to issue new equity are also more likely to be passed up. These findings are consistent with our own expectations and with the findings of prior studies. Column (2) shows that firms with larger trading volume, lower volatility, greater (lesser) market-wide (firm-specific) information and higher stock returns are more likely to join the SGX Scheme.

Furthermore, the correlation coefficient in residuals across regression Equations A1 and A2 are found to be highly insignificant (*p*-value = 0.830), implying that self-selection by analysts does not induce biases in subsequent analyses that rely only on firms without analyst coverage. Hence, our comparisons across sponsored firms and not-followed firms all control for only one stage of self-selection, namely for firms self-selecting to join the Scheme.

A3.2 Difference-in-differences propensity-score matching estimator

To control for potential self-selection biases that arise from firms choosing to join the SGX Scheme, our tests in Section 4.2 (for comparing the information environment and liquidity across sponsored and not-followed firms) are based on a propensity-matching estimator with difference-in-differences analysis. This

approach allows us to construct counterfactuals that permit both cross-sectional differences in observables and time-invariant differences in unobservables across the treatment and comparison firms (Todd 1999, 2008). Based on Kirk (2011), we proceed as follows to obtain propensity scores and our matched sample of not-followed firms:

Step 1: We estimate a probit regression of Equation A2 to obtain the probabilities from the model as propensity scores for each firm-year observation. The output is almost identical to that shown in the second column of Table A1.

Step 2: Using the propensity scores generated in Step 1, we match (without replacement) each sponsored firm to a 'not-followed' firm with the closest propensity score (within a 0.02 caliper) within the same year.

Step 3: We perform the difference-in-differences analysis on the sponsored firms and the propensity score matched sample of the not-followed firms across the introduction of the SGX Scheme, as described in Section 4.2.

These procedures yield a matched not-followed firm for 109 of the 132 sponsored firms. Following Rosenbaum and Rubin (1985), we test the reliability of the propensity score matches, and use a two-sample *t*-test to check if there are significant differences in covariate means between the two groups.[2] Based on the results reported in Table A2, we find no significant differences after matching for those variables at the individual level. When considered jointly, the sponsored firms and the not-followed firms differ insignificantly based, on Hotelling's T^2-test ($p = 0.346$).

A.3.3 *Endogenous treatment effects model*

In Section 4.3, we implement an endogenous treatment effects model for tests to compare sponsored and voluntarily followed firms. This approach is essentially an instrumental variables technique, where the endogenous variable is ordinal or binary (Khandker, Koolwal, and Samad, Chapter 15, 2010; Angrist and Pischke 2008, Chapter 4, Section 4.6; Wooldridge 2010, Section 21.4.1, pp. 938-939). The idea behind this

[2] Additionally, we confirm that the treatment and control samples have common support by plotting the kernel density function of estimated propensity scores in the treatment and control groups.

approach is to find an observable exogenous variable that influences treatment selection (instruments), but not the outcome variable for the treated. The first equation is estimated by using a probit regression to predict the probability of treatment based on observable exogenous variables. The second equation is either a linear or a probit regression for the outcome variables. This approach is useful in producing improved estimates of average treatment effects, especially when the causes of the selection process are observable and are correctly specified in the selection equation. However, as is the case with an instrumental variables model or a Heckman model, the treatment effects model is sensitive to model 'mis-specification', which occurs when important determinants of selection that are also correlated with second-stage outcome variables which are not included in the model. The treatment effects model can also be mis-specified if unobservables in the two stages are not binormally distributed. In these cases, the results of the treatment effect model may remain biased.

TABLE A1: Prediction regressions for voluntary analyst following and for firms joining the SGX Scheme

This table presents probit estimates for when the dependent variable is either $NO\_ANALYST_{it}$ or $SPONSOR_{it}$ for the 2004–2007 period, inclusive. $NO\_ANALYST_{it}$ takes the value of 1 for firms that are not voluntarily covered by analysts (i.e., sponsored and not-followed firms), and 0 for firms with voluntary analyst coverage. $SPONSOR_{it}$ takes the value 1 for firms that join the SGX Scheme (SF firms), and the value 0 for firms without analyst following (not-followed firms). Analysis of NO_ANALYST is based on the entire sample, while analysis based on SPONSOR excludes voluntarily followed firms (i.e., the second column excludes firms that have voluntary analyst coverage). The full variable definitions are presented in Appendix 2. Robust standard errors clustered at the firm-level are reported in parenthesis. *** indicates $p < 0.01$, ** indicates $p < 0.05$ and * indicates $p < 0.1$. The sample for this analysis is described in Table 1 (Panels B and C), and it consists of 944 firm-years for not-followed firms, 358 firm-years for sponsored firms and 587 firms year for voluntarily followed firms.

	Dependent variable:	
VARIABLES	**NO_ANALYST**	**SPONSOR**
CONSTANT	5.730***	-3.527**
	(0.603)	(1.483)
SIZE	-0.244***	0.148
	(0.044)	(0.107)
MB	-0.006	-0.006
	(0.004)	(0.006)
VOLUME	-0.155***	0.103*
	(0.031)	(0.058)
VOLATILITY	1.289*	-3.957***
	(0.703)	(0.983)
RSQ	-3.220***	2.845*
	(0.735)	(1.685)
RETURN	-0.132**	0.260***
	(0.064)	(0.089)
INTANGIBLE	-0.643	0.354
	(0.538)	(0.722)
ISSUE	-0.184*	0.098
	(0.095)	(0.130)
MSCI	-0.195*	
	(0.117)	
Year fixed effects	YES	YES
Observations	1,889	1,302
Pseudo R-squared	0.285	0.132
Wald test of (X = 0)	93.460 ($p < 0.001$)	
LR test of indep. Eqns.	$Chi^2(1) = 0.050$ ($p = 0.830$)	

TABLE A2: Firm characteristics across sponsored firms and matched control firms

This table presents the average values for selected firm characteristics for sponsored (treated) firms and their matched not-followed (control) firms. The table also reports differences in these averages across the samples and the corresponding *t*-statistics. The matched control firms are obtained through propensity-score estimation of Equation (A2), using the most recent data prior to a firm joining the SGX Scheme. The sample for this analysis is described in Table 1, Panel B.

Variable	Treated (No. of firms =109)	Control (No. of firms =109)	Difference	*t*-stat	$p > t$
SIZE	11.658	11.888	-0.230	-1.440	0.150
MB	2.462	3.632	-1.170	-0.830	0.407
VOLUME	11.425	11.012	0.413	1.870	0.063
VOLATILITY	0.119	0.107	0.012	1.310	0.192
RSQ	0.059	0.049	0.011	1.170	0.242
RETURN	0.191	0.212	-0.021	-0.280	0.778
INTANGIBLE	0.028	0.040	-0.012	-1.000	0.319
ISSUE	0.385	0.330	0.055	0.850	0.399

(Hotelling's T^2-test: $F = 1.128$, $p = 0.346$)

TABLE 1 Sample selection procedures

This table contains the frequencies of firms and firm-year observations available for each type of test. Panel A presents the base sample of the raw data, and for the tests of quality of forecasts and revisions, while the remaining panels present the available samples after considering the data requirements for difference-in-difference tests across sponsored versus not followed firms (Panel B), and cross-sectional tests for sponsored and voluntarily followed firms (Panel C).

Panel A: Sample frequencies used in tests of the quality of forecasts, 2004 to 2007

Sample selection procedures	Sponsored		Voluntarily followed	
	firms	forecasts / revisions	firms	forecasts / revisions
SGX-sponsored forecasts for	154	3,062		
One-year-ahead earnings forecasts from IBES, not sponsored by SGX			355	11,890
Total forecasts	154	3,062	355	11,890
Matched with DataStream	143	2,663	299	11,364
After eliminating forecast errors greater than 100% of share price	142	2,621	296	11,285
Final forecasts sample (for Table 3)	**132**	2,385	**224**	10,769
Final revisions sample (for Table 4)	**132**	1,012	**224**	7,504

Panel B: Sample frequencies for the tests of difference-in-differences, 2002 to 2007 (Table 5)

Sample selection procedures	Sponsored		Not Followed	
	firms	firm-years	firms	firm-years
Sponsored and not-followed firms available on DataStream	**132**	558	375	1374*
Final matched sample (for Table 5, Panel A)	109	456	109	559
Final matched sample, with additional data available on stock liquidity measures (for Table 5, Panel B)	66	176	66	206

*For 2004 to 2007, the corresponding figures are 375 firms and 944 firm-years.

Panel C: Sample frequencies for the treatment effects models, 2004 to 2007 (Table 6)

Sample selection procedures	Sponsored		Voluntarily followed	
	firms	firm-years	firms	firm-years
Final sample (for Table 6, Panel A)	**132**	358	**224**	587
Final sample, with additional data available on stock liquidity measures (for Table 6, Panel B)	80	144	130	274

TABLE 2 Summary statistics

Panels A and B present the time and the industry distributions of sample observations, respectively. Panel C compares summary statistics on forecast properties across sponsored (SF) and voluntarily-followed (VF) firms. Panel D shows a comparison of firm characteristics, information environment attributes and stock liquidity measures across these two groups, and Panel E compares the variables across matched sponsored and not-followed (NF) firms. For Panels C, D and E, the number of observations are presented in parenthesis at the top of each set of variables. The two-tailed *p*-values (in parentheses) for the tests of differences between groups are based on median scores. Full definitions are in Appendix 2.

A. Sample distribution by year, of analyst forecasts and revisions for sponsored and voluntarily followed firms

	Sponsored			Voluntarily followed		
	No. of firms	No. of forecasts	No. of revisions	No. of firms	No. of forecasts	No. of revisions
2004	56	311	114	146	3,845	2,974
2005	80	630	276	147	2,305	1,513
2006	120	743	316	137	2,150	1,322
2007	128	701	306	145	2,469	1,695
Full period (2004-2007)	132	2,385	1,012	224	10,769	7,504

B. Sample distribution by industry, of analyst forecasts and revisions for sponsored and voluntarily followed firms

	Sponsored			Voluntarily followed		
Industry	No. of firms	No. of forecasts	No. of revisions	No. of firms	No. of forecasts	No. of revisions
Basic materials	8	129	61	10	147	108
Consumer goods	25	451	194	33	550	355
Consumer services	9	127	50	24	1,279	919
Financials	8	172	76	39	3,666	2,619
Health care	8	104	45	6	143	83
Industrials	51	962	413	68	2,445	1,621
Oil and gas	3	62	27	7	609	411
Technology	18	339	128	29	1,035	748
Telecommunication	0	0	0	3	771	564
Utilities	2	39	18	5	124	76

C. Univariate statistics on analyst forecasts

	Sponsored (*N*=132 firms, 2,385 forecasts)			Voluntarily followed (*N*=224 firms, 10,769 forecasts)			Difference: SF vs. VF*	
	Mean	Std. dev.	Median	Mean	Std. dev.	Median	in median	*p*-value
FE	0.029	0.147	0.014	-0.001	0.105	0.005	0.009	<0.001
ABSFE	0.092	0.130	0.048	0.049	0.098	0.016	0.032	<0.001
HORIZON	0.430	0.281	0.392	0.457	0.286	0.432	-0.040	<0.001
N_ANALYSTS	2.780	0.929	3.000	15.432	8.251	16.000	-13.000	<0.001
	(*N*=132 firms, 1,012 revisions)			(*N*=224 firms, 7,504, revisions)				
REV	-0.006	0.063	-0.002	0.002	0.037	0.001	-0.003	0.003
ABSREV	0.041	0.065	0.017	0.018	0.040	0.006	0.011	<0.001

TABLE 2 contd.

D. Univariate statistics for sponsored firms and voluntarily followed firms in the post-Scheme period

Sponsored vs. Voluntarily followed firms								
	Sponsored (No. of firms = 132)			Voluntarily followed (No. of firms =224)			Difference in medians:	
	Mean	Std. dev	Median	Mean	Std. dev	Median	value	*p*-value
Measures of firm attributes: (SF=358, VF=587, Firm-years)								
SIZE	12.078	1.170	11.983	13.213	1.971	12.963	-0.980	<0.001
MB	2.131	5.431	0.949	3.329	10.221	1.392	-0.443	<0.001
LOSS	0.087	0.282	0.000	0.058	0.234	0.000	0.000	0.120
LEV	0.499	0.250	0.479	0.476	0.239	0.452	0.027	0.194
ROE	0.206	0.475	0.177	0.218	0.546	0.191	-0.014	0.212
RETURN	0.268	0.599	0.139	0.408	0.677	0.274	-0.135	<0.001
INTANGIBLE	0.034	0.075	0.005	0.041	0.081	0.004	0.001	0.926
VOLATILITY	0.102	0.061	0.087	0.104	0.065	0.088	-0.001	0.860
Measures of information environment: (SF=358, VF=587, Firm-years)								
ABS_CAR(ERN)	0.133	0.087	0.116	0.111	0.098	0.090	0.026	<0.001
ABVOL(ERN)	7.714	15.131	2.409	4.459	10.467	1.435	0.974	0.066
IPT	5.955	2.761	6.000	5.477	2.829	6.000	0.000	0.563
SYNC	-3.047	1.975	-2.671	-2.443	1.789	-2.025	-0.646	<0.001
MEDIA	43.249	87.639	25.000	100.961	158.435	42.000	-17.000	<0.001
Measures of stock liquidity: (SF=144, VF=274, Firm-years)								
SPREAD	0.089	0.094	0.058	0.041	0.057	0.019	0.039	<0.001
DEPTH	10.271	1.114	10.219	11.270	1.395	11.211	-0.992	<0.001
VOLUME	11.264	1.720	11.316	12.260	1.608	12.432	-1.116	<0.001
AMIHUDP	1.194	2.791	0.269	0.669	2.670	0.059	0.210	<0.001

TABLE 2 contd.

E. Univariate statistics for sponsored firms and not-followed firms in the post-Scheme period

	Matched Sponsored vs. Matched Not-followed firms							
	Matched Sponsored (No. of firms = 109)			Matched Not-followed (No. of firms = 109)			Difference in medians:	
	Mean	Std. dev	Median	Mean	Std. dev	Median	Value	*p*-value
Measures of firm attributes: (Matched SF=292, Matched NF=318, Firm-years)								
SIZE	11.852	1.031	11.734	11.927	1.371	11.941	-0.207	0.012
MB	2.245	5.880	0.963	5.001	17.902	0.731	0.232	<0.001
LOSS	0.103	0.304	0.000	0.160	0.368	0.000	0.000	0.036
LEV	0.489	0.256	0.461	0.461	0.266	0.441	0.020	0.418
ROE	0.181	0.485	0.161	0.039	0.491	0.069	0.092	<0.001
RETURN	0.258	0.586	0.110	0.203	0.620	0.105	0.005	0.573
INTANGIBLE	0.031	0.076	0.002	0.037	0.099	0.000	0.002	<0.001
VOLATILITY	0.107	0.065	0.094	0.108	0.063	0.093	0.001	0.688
Measures of information environment: (SF=292, Matched NF=318, Firm-years)								
ABS_CAR(ERN)	0.139	0.092	0.124	0.151	0.133	0.119	0.005	0.517
ABVOL(ERN)	7.786	15.310	2.318	3.635	10.259	0.465	1.853	0.009
IPT	5.979	2.768	6.000	5.676	2.888	6.000	0.000	0.145
SYNC	-3.177	1.986	-2.723	-3.609	2.073	-3.249	0.526	0.019
MEDIA	30.041	23.080	23.000	28.720	31.502	19.000	4.000	0.003
Measures of stock liquidity: (SF=117, Matched NF=121, Firm-years)								
SPREAD	0.097	0.097	0.070	0.114	0.097	0.079	-0.009	0.873
DEPTH	10.146	1.062	10.066	10.221	1.196	10.094	-0.028	0.959
VOLUME	11.055	1.734	10.957	11.007	1.904	11.207	-0.250	0.878
AMIHUDP	1.420	3.050	0.490	3.115	8.603	0.506	-0.016	0.715

TABLE 3 Regression of analyst forecast errors on sponsored versus voluntary coverage

This table presents the results from regressions of analyst forecast errors on the variable SPONSOR, an indicator variable set to 1 for a sponsored firm, or set to 0 otherwise. The sample consists of all forecasts made for 132 sponsored and 224 voluntarily followed firms during the period 2004 to 2007, inclusive. Panel A uses all analysts' forecasts, whereas Panel B includes only the last forecast made for each firm prior to its annual earnings announcement. All variables are defined in Appendix 2. The parentheses show robust standard errors that control for firm cluster effects. Asterisks indicate probability levels (*** indicates p<0.01, ** indicates p<0.05 and * indicates p<0.10).

	Panel A: Using all available forecasts				**Panel B: Using only the latest forecasts prior to earnings announcements**			
	FE		ABSFE		FE		ABSFE	
VARIABLES	Selection Model	Main Model	Selection Model	Main Model	Selection Model	Main Model	Selection Model	Main Model
CONSTANT	7.475***	0.033	7.387***	0.060	3.596***	-0.023	2.289**	-0.059
	(1.340)	(0.044)	(1.372)	(0.043)	(0.874)	(0.054)	(0.966)	(0.074)
SPONSOR		**0.010**		**0.026***		**0.004**		**0.166*****
		(0.016)		**(0.015)**		**(0.026)**		**(0.049)**
SIZE	-0.416***	-0.002	-0.417***	0.002	-0.201***	0.003	-0.176***	0.006
	(0.090)	(0.004)	(0.090)	(0.003)	(0.060)	(0.004)	(0.052)	(0.005)
LOSS		-0.044**		0.009		-0.116***		0.023
		(0.019)		(0.016)		(0.026)		(0.026)
HORIZON		-0.004		-0.008*		0.036		-0.028
		(0.005)		(0.005)		(0.026)		(0.024)
N_ANALYSTS		0.001		-0.003***		0.001		-0.003***
		(0.001)		(0.001)		(0.001)		(0.001)
LEV		0.057**		-0.039*		0.043*		-0.003
		(0.024)		(0.021)		(0.025)		(0.024)
EPS		-0.071***		0.049**		-0.122***		0.099***
		(0.021)		(0.020)		(0.030)		(0.033)
ECHG		-0.124**		0.188***		0.038		0.127**
		(0.049)		(0.037)		(0.078)		(0.058)
MB	-0.027		-0.028		-0.023*		-0.023**	
	(0.018)		(0.018)		(0.013)		(0.010)	
VOLUME	-0.219***		-0.209***		-0.092*		0.005	
	(0.060)		(0.065)		(0.049)		(0.052)	
VOLATILITY	1.571		1.693		-0.951		-0.255	
	(1.753)		(1.777)		(1.249)		(1.094)	
RSQ	-1.724*		-1.768*		-1.967**		-1.981***	
	(0.938)		(0.941)		(0.844)		(0.738)	

INTANGIBLE	-1.179		-1.187		-0.743		-0.669	
	(0.917)		(0.914)		(0.895)		(0.625)	
MSCI	-0.163		-0.197		-0.142		-0.305**	
	(0.189)		(0.205)		(0.151)		(0.132)	
ISSUE	-0.263*		-0.271*		-0.081		-0.186*	
	(0.157)		(0.158)		(0.126)		(0.102)	
RETURN	-0.051		-0.063		0.006		-0.067	
	(0.112)		(0.115)		(0.082)		(0.067)	
Year fixed effects	YES	YES	YES	YES	YES	YES	YES	YES
Analyst fixed effects	YES	YES	YES	YES	YES	YES	YES	YES
Pseudo R-squared	0.114		0.156		0.127		0.104	
Observations	13,154	13,154	13,154	13,154	1,082	1,082	1,082	1,082

TABLE 4 Market reactions to forecast revisions

This table presents the results from regressions of market reactions on either revisions in analyst forecasts (REV) or absolute value of revisions (ABSREV). The sample consists of forecast revisions for SGX-sponsored and voluntarily followed firms listed in Singapore during 2004 to 2007. The alternative measures of market reactions to analyst revisions are CAR(REV) and ABVOL(REV). $\widehat{SPONSOR}$ is the predicted value from the probit regression of Equation 1(a). The definitions of all variables are given in Appendix 2. Robust standard errors that control for firm cluster effects are given in parentheses (*** indicates p<0.01, ** indicates p<0.05 and * indicates p<0.1).

VARIABLES	CAR(REV)	ABVOL(REV)
CONSTANT	-0.028	1.085
	(0.030)	(1.709)
REV	0.045	
	(0.033)	
REV*$\widehat{SPONSOR}$	**-0.029**	
	(0.096)	
ABSREV		9.860***
		(3.672)
ABSREV*$\widehat{SPONSOR}$		**-17.450***
		(9.434)
$\widehat{SPONSOR}$	0.027**	3.051***
	(0.013)	(0.984)
SIZE	0.001	-0.070
	(0.001)	(0.074)
MB	-0.000***	0.002*
	(0.000)	(0.001)
VOLATILITY	-0.040	5.253**
	(0.028)	(2.494)
VOLUME	0.001	-0.026
	(0.002)	(0.081)
N_ANALYSTS	0.000	0.025
	(0.000)	(0.022)
DOWN	-0.010***	0.041
	(0.002)	(0.130)
RSQ	-0.006	-0.927
	(0.009)	(0.797)
Year fixed effects	YES	YES
Analyst fixed effects	YES	YES
R-squared	0.021	0.025
Observations	8,516	8,516
F test of REV + REV* $\widehat{SPONSOR}$=0	Chi-square =0.040 (p= 0.834).	
F test of ABSREV + ABSREV*$\widehat{SPONSOR}$=0		Chi-square = 1.170 (p= 0.280).

TABLE 5 Effects of joining the SGX Scheme on the information environment and stock liquidity

This table reports on the impact of joining the SGX scheme on the information environment and the stock liquidity of firms. The research design is based on a difference-in-differences propensity-score matched estimator that compares changes in these constructs for 109 sponsored firms joining the SGX scheme compared to corresponding changes in propensity-score matched not followed firms. The sample for this table consists of sponsored firms and matched not-followed firms during 2002 to 2007, inclusive. The information environment is measured by (i) price and volume reaction to earnings announcements (ABS_CAR(ERN) and ABVOL(ERN)), (ii) the intra-period timeliness of earnings (IPT), (iii) stock price synchronicity (SYNC), and (iv) media coverage (MEDIA). Stock liquidity is measured by (i) bid-ask spread (SPREAD), (ii) market depth (DEPTH), (iii) volume traded (VOLUME), and (iv) price response to a dollar of shares traded (AMIHUDP). All variables are as defined in Appendix 2. Robust standard errors that control for firm cluster effects are given in parentheses (*** indicates p<0.01, ** indicates p<0.05 and * indicates p<0.1).

	Panel A: Information environment					**Panel B: Stock liquidity**			
VARIABLES	ABS_CAR (ERN)	ABVOL (ERN)	IPT	SYNC	MEDIA	SPREAD	DEPTH	VOLUME	AMIHUDP
CONSTANT	0.122***	2.380	5.346***	-2.991***	24.240***	0.055***	8.497***	10.110***	3.318***
	(0.020)	(1.734)	(0.332)	(0.276)	(3.397)	(0.013)	(0.284)	(0.421)	(0.925)
POST	0.015	1.060	0.105	-0.165	0.125	0.012	0.028	0.046	1.680
	(0.017)	(1.869)	(0.288)	(0.244)	(2.946)	(0.012)	(0.233)	(0.291)	(1.260)
SGXSP	0.025*	2.402*	-0.205	0.392*	-3.174	0.000	-0.013	0.289	0.063
	(0.013)	(1.396)	(0.243)	(0.202)	(3.730)	(0.009)	(0.287)	(0.362)	(0.565)
POST*SGXSP	**-0.035****	**1.557**	**0.370**	**-0.032**	**4.509**	**-0.015**	**-0.100**	**-0.399**	**-1.836**
	(0.014)	**(1.739)**	**(0.323)**	**(0.249)**	**(4.120)**	**(0.015)**	**(0.248)**	**(0.300)**	**(1.194)**
LEV	0.019	0.480	0.265	-0.565**					
	(0.021)	(1.693)	(0.308)	(0.222)					
ROE				-0.143					
				(0.123)					
SKEW				-0.191**					
				(0.093)					
KURT				-0.009					
				(0.020)					
LOSS	0.038***	-3.654***	-1.152***						
	(0.013)	(0.977)	(0.221)						
ABSRET					4.713***				
					(1.528)				
PRICE						-0.021***	0.115	-0.136	0.620**
						(0.004)	(0.092)	(0.136)	(0.298)
Year fixed effects	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	1,015	1,015	1,015	1,015	1,015	382	382	382	382
R-squared	0.031	0.036	0.151	0.203	0.038	0.224	0.036	0.075	0.040

TABLE 6 Treatment-effects analysis of the information environment and stock liquidity for sponsored and voluntarily followed firms in the post-Scheme period 2004-2007

Panel A reports the treatment effects of a firm joining the SGX Scheme in terms of the price and volume reactions to earnings announcements (ABS_CAR(ERN) and ABVOL(ERN)), the intra-period timeliness of earnings (IPT), the stock price synchronicity (SYNC) and the level of media coverage (MEDIA). Panel B presents the results for four stock liquidity measures: (i) bid-ask spread (SPREAD), (ii) market depth (DEPTH), (iii) traded volume (VOLUME), and (iv) price impact of trade (AMIHUDP). All variables are as defined in Appendix 2. Robust standard errors that control for firm cluster effects are given in parentheses (*** indicates $p<0.01$, ** indicates $p<0.05$ and * indicates $p<0.1$).

Panel A: The information environment

VARIABLES	ABS_CAR(ERN)		ABVOL(ERN)		IPT		SYNC		MEDIA	
	Selection Model	Main Model	Selection Model	Main Model	Selection Model	Main Model	Selection Model	Main Model	Selection Model	Main Model
CONSTANT	3.481***	0.006	4.233***	20.330***	4.236***	4.219**	3.606***	-6.554***	3.898***	-242.300***
	(0.729)	(0.040)	(0.771)	(5.372)	(0.777)	(1.679)	(0.800)	(0.916)	(0.752)	(80.010)
SPONSOR		**0.137*** **		**0.794**		**0.280**		**-1.540*** **		**-152.100*** **
		(0.021)		**(3.059)**		**(0.948)**		**(0.365)**		**(27.400)**
SIZE	-0.188***	0.000	-0.227***	-0.929***	-0.228***	0.009	-0.189***	0.164***	-0.213***	29.810***
	(0.045)	(0.002)	(0.052)	(0.327)	(0.053)	(0.104)	(0.052)	(0.043)	(0.054)	(6.824)
MB	-0.020***	0.002*	-0.016**	0.046	-0.016**	-0.004	-0.015**	0.004	-0.013*	-0.072
	(0.008)	(0.001)	(0.008)	(0.046)	(0.008)	(0.012)	(0.007)	(0.004)	(0.007)	(0.359)
VOLUME	-0.099***		-0.118**		-0.117**		-0.089*	0.201***	-0.077*	
	(0.038)		(0.048)		(0.049)		(0.046)	(0.048)	(0.041)	
VOLATILITY	-1.182	0.392***	-1.702	-18.590***	-1.702	0.091	-1.100		-1.888*	-88.760
	(1.000)	(0.073)	(1.056)	(6.856)	(1.080)	(1.686)	(0.936)		(0.990)	(72.090)
RSQ	-0.786		-1.204		-1.231		-2.404***		-3.268***	
	(0.584)		(0.833)		(0.830)		(0.774)		(0.777)	
INTANGIBLE	-0.269		-0.410		-0.448		-0.535		-0.676	
	(0.505)		(0.819)		(0.826)		(0.664)		(0.684)	
ISSUE	0.020		-0.067		-0.057		-0.071		-0.141	
	(0.087)		(0.133)		(0.134)		(0.109)		(0.097)	
RETURN	-0.103*		0.028		0.023		-0.109		0.011	
	(0.057)		(0.079)		(0.095)		(0.074)		(0.069)	
MSCI	-0.163		-0.195		-0.184		-0.150		-0.158	
	(0.110)		(0.168)		(0.167)		(0.143)		(0.122)	
LOSS		0.037**		-0.922		-1.536***				
		(0.018)		(2.348)		(0.387)				
LEV		0.020		1.002		1.227***		-0.386**		
		(0.016)		(1.774)		(0.377)		(0.186)		
ROE								-0.082		
								(0.089)		
SKEW								-0.087		
								(0.080)		
KURT								-0.057***		
								(0.019)		
ABSRET										-2.611
										(7.571)
Year fixed effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Pseudo R-squared	0.191		0.035		0.087		0.375		0.344	
Observations	945	945	945	945	945	945	945	945	945	945

Panel B: Stock liquidity

	SPREAD		DEPTH		VOLUME		AMIHUDP	
VARIABLES	Selection Model	Main Model	Selection Model	Main Model	Selection Model	Main Model	Selection Model	Main Model
CONSTANT	5.435***	0.044	4.792***	6.550***	4.704***	10.620***	3.937***	1.006
	(1.009)	(0.041)	(0.926)	(0.779)	(0.818)	(1.123)	(1.507)	(1.640)
SPONSOR		**0.079*** **		**-1.898*** **		**-2.598*** **		**3.496*** **
		(0.010)		**(0.140)**		**(0.139)**		**(1.180)**
SIZE	-0.183**	-0.003	-0.093	0.358***	-0.042	0.185**	-0.120	-0.144
	(0.072)	(0.003)	(0.067)	(0.056)	(0.055)	(0.080)	(0.076)	(0.119)
MB	-0.018**		-0.027***		-0.054***		-0.018	
	(0.009)		(0.006)		(0.009)		(0.013)	
VOLUME	-0.312***		-0.356***		-0.387***		-0.253***	
	(0.061)		(0.045)		(0.046)		(0.072)	
VOLATILITY	0.813	0.045	1.694	2.967**	1.815	6.616***	1.802	5.555*
	(1.575)	(0.070)	(1.524)	(1.319)	(1.619)	(1.965)	(1.293)	(3.304)
RSQ	0.792		0.765		-0.359		0.416	
	(1.108)		(0.666)		(0.621)		(0.880)	
INTANGIBLE	-0.351		-0.455		0.611		-0.473	
	(1.017)		(0.630)		(0.590)		(0.707)	
ISSUE	-0.129		-0.100		-0.218***		-0.137	
	(0.161)		(0.130)		(0.085)		(0.112)	
RETURN	-0.076		0.012		0.0525		-0.146	
	(0.140)		(0.086)		(0.070)		(0.127)	
MSCI	-0.140		-0.087		0.067		-0.030	
	(0.190)		(0.130)		(0.109)		(0.151)	
PRICE		-0.018***		0.228***		-0.043		0.119
		(0.004)		(0.060)		(0.087)		(0.171)
Year fixed effects	YES	YES	YES	YES	YES	YES	YES	YES
Pseudo R-squared	0.457		0.698		0.564		0.208	
Observations	418	418	418	418	418	418	418	418