

Do Pre-Announcement Prices Contain Information?

- Expectations of macroeconomic releases found via surveys may be biased
- If prices prior to release contain information about upcoming releases, this may be used to improve survey measures
- Firstly, the paper provides a theoretical underpinning of the link between survey measures and orderflow information
- Secondly, it tests the information content of orderflow on bond markets about upcoming macroeconomic releases
- Finally, it incorporates orderflow information into measures of expectations

Theoretical Underpinning of Link Between Information and Prices

- Informed trading will be reflected in prices
- The model is a Hellwig (1980) type model from Vives (2008)
- Capture price action around the release of macroeconomic announcements.
- We model the release of a macroeconomic statistic, ζ , as stochastic variable in 2-period model (see paper for full model)
- Price dynamics after release

$$p_t = \alpha(\zeta - \bar{v}) - \frac{\alpha\beta}{b}(ap_{t-1} - u)$$

- Two factors determine the pricing dynamics:
 - The surprise content of the macroeconomic release, i.e. $(\zeta - \bar{v})$, where \bar{v} is the survey expectation.
 - The updating of market expectations, which is revealed through past prices, but blurred by a noise trading shock u

Empirical Model

- The conditional mean regression for each of the $k=8$ macroeconomic announcements ^a

$$r_t = \alpha_0 + \gamma_k \tilde{r}_{t-1} + \gamma_k^{EA} D_k \tilde{r}_{t-1} + \alpha_k^{MA} (\zeta_t^k - \bar{v}_t^k) + \varepsilon_t$$

- Conditional volatility equation

$$\sigma_t^2 = \beta_0 + \beta_1 \varepsilon_{t-1}^2 + \beta_2 \sigma_{t-1}^2 + \beta_3 D_k$$

- A negative (positive) return prior to announcement \Rightarrow expectations of a more positive (negative) release
- Hence $\gamma_k^{EA} < 0 \Leftrightarrow$ pre-announcement prices contain informational value
- By re-arranging the conditional mean specification we obtain

$$r_t = \alpha_0 + \gamma_k \tilde{r}_{t-1} + \alpha_k^{MA} \left(\zeta_t^k - \left(\bar{v}_t^k - \frac{\gamma_k^{EA}}{\alpha_k^{MA}} D_k \tilde{r}_{t-1} \right) \right) + \varepsilon_t$$

- This gives us an estimator for the market-adjusted expectation

$$V_{market} = \bar{v}_t^k - \frac{\gamma_k^{EA}}{\alpha_k^{MA}} D_k \tilde{r}_{t-1}$$

^aFor announcement k , r_t is the return 1 minute before release to 4 minutes after release, \tilde{r}_{t-1} is respectively the 10-, 15-, 30- and 60-minute return prior to release, D_k is a dummy taking value 1 on announcement days and $(\zeta_t^k - \bar{v}_t^k)$ is the surprise, i.e. actual outcome minus the survey expectation

Non-farm Payroll Release on Aug 1st 2008

Date	Time	Event	Period	Survey	Actual	Prior	Revised
08/01	14:30	Change in Nonfarm Payrolls	JUL	-75K	-51K	-62K	-51K
08/01	14:30	Unemployment Rate	JUL	5.6%	5.7%	5.5%	--
08/01	14:30	Change in Manufact. Payrolls	JUL	-40K	-35K	-39K	-39K
08/01	14:30	Average Hourly Earnings MoM	JUL	0.3%	0.3%	0.3%	--
08/01	14:30	Average Hourly Earnings YoY	JUL	3.4%	3.4%	3.4%	--
08/01	14:30	Average Weekly Hours	JUL	33.7	33.6	33.7	--
08/01	15:00	RPX Composite 28day Index	MAY	--	--	234.41	--
08/01	15:00	RPX Composite 28day YoY	MAY	--	--	-14.7%	--
08/01	16:00	ISM Manufacturing	JUL	49.0	--	50.2	--
08/01	16:00	ISM Prices Paid	JUL	88.0	--	91.5	--
08/01	16:00	Construction Spending MoM	JUN	-0.3%	--	-0.4%	--
08/01	16:00	Domestic Vehicle Sales	JUL	9.9M	--	9.9M	--
08/01	16:00	Total Vehicle Sales	JUL	13.0M	--	13.0M	--
08/04	13:30	Challenger Job-Openings	JUL	--	--	46.7%	--
08/04	14:30	Personal Income	JUN	-0.2%	--	1.9%	--
08/04	14:30	Personal Spending	JUN	0.5%	--	0.8%	--
08/04	14:30	PCE Deflator (YoY)	JUN	--	--	3.1%	--
08/04	14:30	PCE Core (MoM)	JUN	0.1%	--	0.1%	--
08/04	14:30	PCE Core (YoY)	JUN	2.8%	--	2.8%	--

10-year T-notes Futures Price on Aug 1st 2008



US and Euro Area Data Used in Study

- Intraday returns on German Bunds and US T-note futures contract since July 2003
- Covers a set of the most important indicators: US non-farm payroll, US CPI (MoM), US industrial Production, US ISM manufacturing confidence, US ISM non-manufacturing confidence, US Retail Sales, GE IFO business sentiment indicator and GE ZEW indicator. Survey and actual releases of announcements are from Bloomberg

Estimation Results - EA

γ_k^{EA} in regressions based on German Bunds futures contract data

	10-minute	15-minute	30-minute	60-minute
CPI	0.3693 (0.4412)	-0.4279 (0.4250)	-0.3825 (0.3953)	0.2963 (0.2826)
Ind. Prod.	-0.0349 (0.1709)	-0.1360 (0.1121)	0.0591 (0.0955)	0.0102 (0.0572)
ISM Man.	-0.6535* (0.3599)	-0.1544 (0.3279)	-0.6139*** (0.1739)	-0.1454 (0.1873)
ISM Non-Man.	-0.1192 (0.2421)	-0.1012 (0.2315)	-0.0879 (0.1154)	-0.1187 (0.1006)
Non-farm payroll	-1.4065*** (0.2347)	-1.1396*** (0.2160)	-1.0712*** (0.2068)	-0.8921*** (0.2883)
Retail Sales	-0.1255 (0.5921)	-0.2270 (0.4425)	-0.0076 (0.3061)	-0.0104 (0.2152)
IFO (GE)	-1.2399*** (0.4349)	-0.9802** (0.4093)	-0.7288** (0.3200)	-0.4900** (0.2127)
ZEW (GE)	-0.4829*** (0.1660)	-0.4685*** (0.1453)	-0.2450 (0.1426)	-0.0773 (0.1000)

Estimation Results - US

γ_k^{EA} in regressions based on US T-note futures contract data

	10-minute	15-minute	30-minute	60-minute
CPI	-0.2616 (0.6697)	-0.6163 (0.5647)	-0.4011 (0.3623)	0.1158 (0.2070)
Ind. Prod.	-0.0319 (0.1820)	-0.0486 (0.1354)	0.1052 (0.0946)	0.0431 (0.0490)
ISM Man.	-1.0313*** (0.3331)	-0.7215*** (0.0910)	-0.3541 (0.2097)	-0.1406 (0.1900)
ISM Non-Man.	-0.0968 (0.2742)	-0.0906 (0.1740)	-0.2284* (0.1198)	-0.2136 (0.1189)
Non-farm payroll	-1.1739*** (0.3150)	-1.1696*** (0.3019)	-1.1798*** (0.2811)	-1.0858*** (0.3897)
Retail Sales	-0.7940 (0.5991)	-0.7075 (0.5346)	-0.3478 (0.3564)	-0.4403 (0.2952)
IFO (GE)	-0.3600 (0.2219)	-0.0301 (0.1654)	-0.1152 (0.1390)	-0.0475 (0.0742)
ZEW (GE)	-0.4217*** (0.1427)	-0.1979 (0.1121)	-0.0490 (0.0860)	-0.0273 (0.0569)

Hit-ratio Is Slightly Higher

Hit ratio of the market-adjusted expectation and Bloomberg survey measures

	Bunds				T-notes			
	10-minute	15-minute	30-minute	60-minute	10-minute	15-minute	30-minute	60-minute
CPI	0.43	0.38	0.42	0.26	0.41	0.36	0.40	0.33
Ind. Prod.	0.41	0.44	0.49	0.33	0.51	0.48	0.43	0.35
ISM Man.	0.49	0.52	0.48	0.53	0.54	0.60	0.58	0.54
ISM Non-Man.	0.48	0.48	0.50	0.44	0.55	0.46	0.53	0.51
Non-farm Payroll	0.53	0.57	0.49	0.53	0.52	0.54	0.50	0.50
Retail Sales	0.45	0.55	0.26	0.33	0.51	0.53	0.60	0.63
IFO (GE)	0.60	0.52	0.54	0.57	0.55	0.49	0.42	0.42
ZEW (GE)	0.54	0.60	0.57	0.61	0.53	0.54	0.55	0.64

Download

- Paper can be downloaded at www.juloverby.dk

Four Results

- Announcements with the highest market impact are those with the strongest degree of adjustment
- Domestic markets contain most information about domestic releases
- Measures of market-adjusted expectations increase in precision closer to the announcement / prices have the highest information shortly before release
- Forecast errors of the market-adjusted expectation measure is not improved, but appear to be better at capturing the directionality of the surprise, i.e. whether the release surprises positively or negatively