CESifo WORKING PAPERS

10750
2023

November 2023

From 'I Don't Like Mondays' to 'Friday I'm in Love' — Day-of-the-Week Effects in Business Surveys

Jonas Hennrich, Klaus Wohlrabe

CESifo

Impressum:

CESifo Working Papers
ISSN 2364-1428 (electronic version)
Publisher and distributor: Munich Society for the Promotion of Economic Research - CESifo GmbH
The international platform of Ludwigs-Maximilians University's Center for Economic Studies and the ifo Institute
Poschingerstr. 5, 81679 Munich, Germany
Telephone +49 (0)89 2180-2740, Telefax +49 (0)89 2180-17845, email office@cesifo.de
Editor: Clemens Fuest
https://www.cesifo.org/en/wp
An electronic version of the paper may be downloaded
· from the SSRN website: www.SSRN.com
· from the RePEc website: www.RePEc.org
· from the CESifo website: https://www.cesifo.org/en/wp

CESifo *Working Paper No. 10750*

From 'I Don't Like Mondays' to 'Friday I'm in Love' – Day-of-the-Week Effects in Business Surveys

Abstract

This study identifies day-of-the-week effects in business surveys using monthly data from the ifo Institute. The odds are higher that companies are more likely to exhibit more pessimistic business expectations for the upcoming months on Mondays and more optimistic expectations at the end of the week. The same holds for the assessment of the current business situation. Firms are more uncertain about their upcoming business development on Mondays and less uncertain on Saturdays. The effects are mainly driven by firms from the service sector and by companies with less than 50 employees. Although statistically significant, the effects are economically rather small.

JEL-Codes: D840, E320, D910.

Keywords: day-of-the-week effect, ifo Business Survey, answering behaviour, expectations, uncertainty.

Jonas Hennrich
ifo Institute – Leibniz Institute for Economic Research at the University of Munich
Munich / Germany
hennrich@ifo.de

*Klaus Wohlrabe**
ifo Institute – Leibniz Institute for Economic Research at the University of Munich
Munich / Germany
wohlrabe@ifo.de

*corresponding author

October 31, 2023

1 Introduction

The day-of-the-week (DOW) effect is a prominent feature in the movements of financial markets. Cross (1973) was one of the first to show such an effect on stock prices. Gibbons and Hess (1981) use the S&P 500 returns from 1962 to 1978. The authors find that the returns are not constant across days of the week with the mean unusually low or even negative for Mondays. DellaVigna and Pollet (2009) find that Friday earnings announcements have a lower immediate and a higher delayed response rate than announcements on other weekdays. One of the reasons they give is that, on Fridays, investors are more distracted from work-related activities. Chiah and Zhong (2019) show that the quality-minus-junk factor (QMJ) generates a positive (negative) premium on Mondays (Fridays), i.e. investors are more optimistic (pessimistic) about the future prospect of speculative stocks on Fridays (Mondays). In addition, the DOW effect has also been studied in social sciences. Taylor (2005) and Akay and Martinsson (2009) find that the weekday can influence people's subjective well-being, mental distress, or job satisfaction.

Unlike in the areas just mentioned, there is no evidence yet whether DOW effects also occur in business surveys. We provide answers using data from the monthly ifo Business Survey focusing on three key questions: business situation and expectations as well as uncertainty. We take the participation date from the online survey since 2004 and from the paper survey since 2020. Our results show that firms are less optimistic and more uncertain at the beginning than at the end of the week.

2 Methods and data

The monthly ifo Business Survey has run since December 1949 and its basic concept has remained relatively unchanged since then. It mainly rests on qualitative questions (mostly three-likert scale). Sauer, Schasching, and Wohlrabe (2023) provide background concerning the questionnaire, sampling, and representativeness.

We concentrate on the two main sentiment questions: assessment of the current business

situation and the business expectations for the next six months. These two questions form the basis of the famous ifo Business Climate Index. Furthermore, we investigate a potential impact on uncertainty of firms.

Regarding the business situation, the respondents are asked to answer if they assess their current situation as 'good', 'satisfactory', or 'poor'. With respect to the business expectations, they are asked if they expect the business situation to 'become better', 'stay the same', or 'get worse'. Both of these questions are intentionally kept vague to guarantee the respondents enough freedom when answering them.

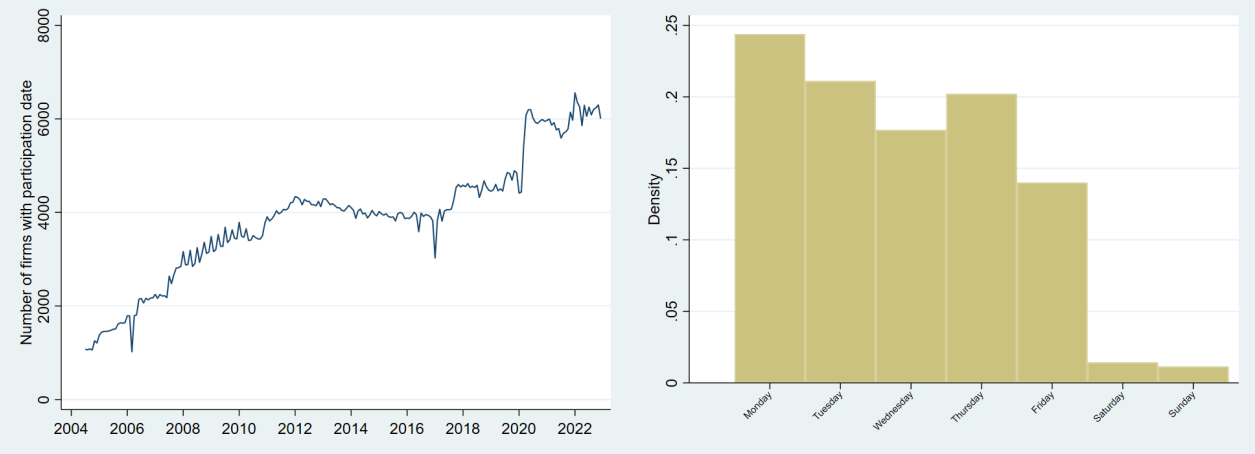
We transform the variables into dummy variables. Business situation equals 1 for 'good' and 0 for 'satisfactory' or 'poor'. Expectations are 1 for 'better' and 0 for 'same' or 'worse'. We investigate the DOW effects in terms of the odds of giving a positive answer.[1]

Additionally, we measure potential a DOW effect with respect to business uncertainty. In the ifo Business Survey, firms can indicate whether predicting their business development is 'easy', 'rather easy', 'rather difficult', or 'difficult'. We define a high-uncertainty dummy variable by assigning 1 to the latter two options and 0 to the former two, representing low uncertainty. The uncertainty question has only been part of the questionnaire since 2019.

The day of the survey participation of a firm is available since July 2004 for online users. The online share has risen from 40% in 2004 to 80% at the end of 2022. For the firms participating by paper, the date of completion is available from the beginning of 2020. Including the participation date on the paper questionnaire was triggered by the COVID-19 pandemic (Buchheim, Krolage, and Link, 2022). The left panel of Figure 1 shows the number of firms in our sample where the participation date is available. It starts with approximately 1,000 firms in 2004 and increases to more than 6,000 in 2022. The structural shift due to the addition of the paper participants is clearly visible in 2020. In the right part of Figure 1 we show on which day of the week the firms answer the questionnaire. In about 25% of the cases, this is Monday, followed by Tuesday and Thursday with about 20% each. Compared to the other days of the week, the questionnaires are filled out rather rarely on Saturday and

[1]The results remain qualitatively the same when employing an ordinal regression model or defining a dummy representing negative answers.

Figure 1: Development of recorded participation dates and distribution of responses across days of the week



Notes: The left panel depicts the development over time of the number of firms for which a completion date was recorded. The right panel shows the distribution of responses by days of the week.

Sunday.

Given our binary dependent variables we run a logit regression model which is given by

$$y_{it} = \alpha + \beta_1 X_{it} + \beta_2 Online_{it} + \theta_i + \gamma_t + \varepsilon_{it}, \tag{1}$$

where y_{it} is the variable of interest. X_{it} covers the days of the week represented by dummy variables with Tuesday as reference day.[2] We control whether a firm participates online or via paper. We add week and month fixed effects (γ_t) as well as branch and size fixed effects (θ_i). We cluster standard errors at the firm-level. Besides the full sample we calculate results for the three economic sectors manufacturing, services and trade. In addition, we examine observations from 2020 onwards more closely since, with the COVID-19 pandemic and the Russian invasion of Ukraine falling in this period, they represent a rather turbulent phase of the business cycle. Finally, we investigate whether the DOW effect varies with firm size. For this we split the data set into firms with less than 50 (small) and more than 1000 employees (large).

[2]The results remain qualitatively the same when using Wednesday instead of Tuesday as reference day.

3 Results

In Table 1 and 2 we report the results for the two sentiment questions. Considering the full sample we observe a small negative significant effect on Mondays for both business situation and expectations. The odds that the business situation is rated as 'good' if the questionnaire is answered on Mondays are 0.979 that of the odds of a 'good' rating if the answer was given on Tuesdays. Further, the odds that on Mondays respondents evaluate their business expectations as 'better' are reduced by 3.8%. This effect is reversed on Fridays where the odds of getting a 'better' answer increase by 2.8%. Thus, the odds are higher that companies are more pessimistic at the beginning of the week and more optimistic at the end of the week. For the business situation, however, we do not find any significant effect on Fridays. On Saturdays and Sundays, on the other hand, the odds of a 'good' answer significantly increase by 8.2% and 7.5%, respectively.

Regarding individual sectors, there is evidence that the DOW effects are mainly driven by the service sector. Some of the effects have intensified since 2020. We observe an increased negative effect for the business situation on Mondays. Also, the positive effects on expectations at the end of the week amplify. Focusing on firm size, we observe that for firms with less than 50 employees, the positive effect on Mondays and the negative effect at the end of the week intensifies for both the business situation and expectations. We find that the odds that a small firm gives a 'better' answer regarding business expectations decrease by 5.5% on Mondays and increase by 3.6% on Fridays. In terms of the business situation, we observe 3.2% lower and 8.7% bigger odds to get a 'good' answer on Mondays and Saturdays, respectively. For companies with more than 1000 employees, though, we find no significant effect for either the business situation or expectations.

Results regarding uncertainty are reported in Table 3. We find that the odds that respondents are uncertain about their business development on Mondays increase by 6.9%. This effect is larger than the effects on all other days of the week. Conversely, on Saturdays the odds that firms are uncertain are 0.878 that of the odds if the uncertainty is reported on Tuesdays. For small firms the effect of higher odds on Mondays amounts to 5.4% and is thus

somewhat less pronounced. On the other hand, the odds for 'high' uncertainty decrease more strongly on Saturdays with a value of 15.9%.[3]

4 Concluding remarks

This paper shows that responses to the questions on sentiment and uncertainty in the ifo Business Survey vary significantly with the day of the week. Even though statistically significant, the effects are economically speaking rather small. However, with regard to practical applications such as business cycle analysis, this is a good result since strong effects would have been a cause for concern. If the response behavior for the questions varied greatly with the day of the week, this would mean a worrying distortion of ifo survey results and its forecasting power (Lehmann, 2023).

Acknowledgements

The authors would like to thank Andreas Peichl and Manuel Menkhoff for helpful comments.

[3]For large firms, contrary to previous findings of lower uncertainty on Saturdays, we observe a very strong positive effect of a 172.8% increase in the odds for 'high' uncertainty. This result might be the consequence of a data fragment since there are only 74 observations in this group.

References

Akay, A., and P. Martinsson (2009): "Sundays are Blue: Aren't They? The Day-of-The-Week Effect on Subjective Well-Being and Socio-Economic Status," *IZA Discussion Paper*, 4563.

Buchheim, L., C. Krolage, and S. Link (2022): "Sudden stop: When did firms anticipate the potential consequences of COVID-19?," *German Economic Review*, 23(1), 79–119.

Chiah, M., and A. Zhong (2019): "Day-of-the-week effect in anomaly returns: International evidence," *Economics Letters*, 182, 90–92.

Cross, F. (1973): "The Behavior of Stock Prices on Fridays and Mondays," *Financial Analysts Journal*, 29(6), 67–69.

DellaVigna, S., and J. M. Pollet (2009): "Investor Inattention and Friday Earnings Announcements," *The Journal of Finance*, 64(2), 709–749.

Gibbons, M. R., and P. Hess (1981): "Day of the Week Effects and Asset Returns," *Journal of Business*, pp. 579–596.

Lehmann, R. (2023): "The Forecasting Power of the ifo Business Survey," *Journal of Business Cycle Research*, 19(1), 43–94.

Sauer, S., M. Schasching, and K. Wohlrabe (2023): "Handbook of ifo Surveys," *ifo Beiträge zur Wirtschaftsforschung*, 100.

Taylor, M. P. (2005): "Tell Me Why I Don't Like Mondays: Investigating Day of the Week Effects on Job Satisfaction and Psychological Well-Being," *Journal of the Royal Statistical Society Series A: Statistics in Society*, 169(1), 127–142.

Table 1: Regression results for Business Situation *'Good'*

	Full Sample	Manufacturing	Services	Trade	2020-2022	Small Firms	Large Firms
Monday	0.979***	0.988	0.952***	0.985	0.943***	0.968***	1.031
	(0.008)	(0.012)	(0.014)	(0.020)	(0.016)	(0.011)	(0.031)
Wednesday	0.989	1.000	0.975*	1.000	0.956***	0.983	0.970
	(0.008)	(0.013)	(0.015)	(0.020)	(0.016)	(0.012)	(0.032)
Thursday	1.013	1.035***	1.010	1.047**	0.984	1.017	1.031
	(0.008)	(0.014)	(0.015)	(0.021)	(0.016)	(0.012)	(0.034)
Friday	1.000	1.019	0.993	1.026	0.967*	1.019	0.963
	(0.010)	(0.016)	(0.017)	(0.025)	(0.017)	(0.014)	(0.038)
Saturday	1.082***	1.185***	1.071	1.024	1.096**	1.087**	1.008
	(0.032)	(0.069)	(0.049)	(0.054)	(0.050)	(0.039)	(0.162)
Sunday	1.075**	0.997	1.147***	1.086	1.084	1.158***	1.050
	(0.038)	(0.066)	(0.059)	(0.075)	(0.058)	(0.051)	(0.157)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	811,404	367,728	267,243	176,433	211,973	386,888	53,529

Notes: This table shows the odds ratios of the logistic regression of the assessment of the business situation as 'good' on each day of the week, represented by dummy-variables, and the participation type including month, branch, and size fixed effects. Tuesday acts as the reference day. $*p < 0.1$, $**p < 0.05$, $***p < 0.01$

Table 2: Regression results for Business Expectations *'Better'*

	Full Sample	Manufacturing	Services	Trade	2020-2022	Small Firms	Large Firms
Monday	0.962***	0.994	0.935***	0.948**	0.969	0.945***	1.013
	(0.009)	(0.014)	(0.015)	(0.024)	(0.019)	(0.013)	(0.036)
Wednesday	1.007	1.012	1.002	0.996	1.058***	1.024*	0.925**
	(0.009)	(0.015)	(0.016)	(0.024)	(0.021)	(0.014)	(0.034)
Thursday	1.014	1.028*	0.999	1.019	1.042**	1.023*	0.986
	(0.010)	(0.015)	(0.017)	(0.024)	(0.020)	(0.014)	(0.038)
Friday	1.028***	1.038**	1.021	0.968	1.075***	1.036**	0.984
	(0.011)	(0.018)	(0.019)	(0.029)	(0.022)	(0.016)	(0.041)
Saturday	1.065*	1.151**	0.975	1.106	1.139***	1.057	1.121
	(0.035)	(0.071)	(0.046)	(0.074)	(0.057)	(0.041)	(0.203)
Sunday	1.015	1.009	0.983	1.038	1.136**	1.011	1.429
	(0.039)	(0.076)	(0.052)	(0.089)	(0.068)	(0.045)	(0.368)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	808,954	366,682	266,025	176,240	211,369	385,703	53,317

Notes: This table shows the odds ratios of the logistic regression of the assessment of the business expectations as 'better' on each day of the week, represented by dummy-variables, and the participation type including month, branch, and size fixed effects. Tuesday acts as the reference day. $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$

Table 3: Regression results for Business Uncertainty *'High'*

	Full Sample	Manufacturing	Services	Trade	Small Firms	Large Firms
Monday	1.069***	1.041	1.078***	1.068	1.054**	1.075
	(0.019)	(0.031)	(0.028)	(0.043)	(0.025)	(0.094)
Wednesday	1.029*	1.012	1.047*	1.042	1.006	1.015
	(0.017)	(0.031)	(0.029)	(0.041)	(0.023)	(0.082)
Thursday	1.033*	1.014	1.022	1.031	0.992	0.947
	(0.017)	(0.030)	(0.028)	(0.038)	(0.022)	(0.084)
Friday	0.999	0.946*	1.039	0.991	0.971	1.115
	(0.018)	(0.031)	(0.030)	(0.040)	(0.023)	(0.102)
Saturday	0.878***	0.863	0.861**	0.907	0.841***	2.728**
	(0.041)	(0.091)	(0.059)	(0.077)	(0.046)	(1.281)
Sunday	0.989	0.942	1.045	0.947	0.930	1.032
	(0.057)	(0.123)	(0.081)	(0.108)	(0.064)	(0.350)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
N	250,853	89,409	95,811	65,623	141,641	11,054

Notes: This table shows the odds ratios of the logistic regression of the assessment of the business uncertainty as 'high' on each day of the week, represented by dummy-variables, and the participation type including month, branch, and size fixed effects. Tuesday acts as the reference day. $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$