

U.S. Macroeconomic News and International Stock Prices: Evidence from Newspaper Coverage

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Abstract

Existing studies provide mixed evidence that the U.S. macroeconomic news impacts international stock prices. We believe this may be related to the fact that economic surprises may not capture how investors interpret macroeconomic releases in various economic conditions. Consequently, we follow Birz and Lott (2011) and use newspaper coverage of economic releases as a measure of news. We argue that in addition to capturing the surprise component of macroeconomic releases, newspaper coverage provide interpretation of these releases similarly to how investors may interpret them in various economic conditions. Out of 15 examined international stock markets, we find that the U.S. macroeconomic news impacts stock returns of 12 countries.

Keywords: Stock returns, Macroeconomic news, Media

JEL classification: E44, F36, G12; G14;

1. Introduction

The link between asset prices and macroeconomic fundamentals is one of the most researched topics in financial economics. While many of these studies investigate the effect of domestic news on domestic prices, a subset of this literature examines whether one country's macroeconomic news may affect asset prices of other countries. Many researchers are particularly interested in the U.S. macroeconomic announcements and whether they affect international stock prices. Albuquerque and Vega (2009) argue that the correlation between the U.S. macroeconomic news and international stock prices is theoretically plausible since the U.S. macroeconomic fundamentals contain global economic information. Similarly, Lucey et al. (2013) argue that the U.S. macroeconomic news should affect international stock prices of other developed countries since United States is a trading partner of many of these countries.

However, the empirical evidence that the U.S. macroeconomic announcements affect international stock prices is rather weak. Lucey et al. examine 14 U.S. macroeconomics announcements and stock markets of 12 foreign countries but do not find strong evidence that the U.S. macroeconomic surprises impact foreign stock prices. Bialkowskia et al. (2006) find that while the U.S. macro news affects the U.K., German and Japanese stock markets, it does not affect other markets. Conolly and Wang (2003) find that the comovement between the U.K., the U.S. and Japanese stock markets cannot be attributed to macroeconomic fundamentals. Cakan et al. (2015) suggest that the U.S. economic news may be important for volatilities of international stock markets however, their study does not investigate the impact on returns. Nikkinen et al. (2006) find the effect of the U.S. macroeconomic news on the European and the Asian stock markets but not on the Latin American and Transitional markets. Interestingly, Albuquerque and Vega (2009) note that it is difficult to find the effect of U.S. macro news on stock prices in large foreign economies, and instead, propose to study the effect of U.S. macroeconomic news on smaller markets such as Portuguese stock market.

Previously, studies examining the U.S. stock market have also struggled to find conclusive empirical evidence that the U.S. macroeconomic news affect domestic stock prices. As Birz and Lott (2011) explain, there are two main reasons for the lack of evidence. First, not all macroeconomic data are important for stock prices. Some research papers examine asset price effects of many economic factors. After finding statistically significant effects of only few of these factors such as the unemployment rate or nonfarm payroll employment, they conclude that asset prices do not respond to macroeconomic news since the effects of most of the examined economic variables do not produce

statistically and economically significant results. Alternatively, this may simply mean that only some macroeconomic releases are important for financial markets as traders only pay attention to variables carrying the most information about economic conditions. For instance, many researchers argue that employment and unemployment news announcements are the most important announcements for asset prices among all macroeconomic releases. [Andersen and Bollerslev (1998), Andersen et al. (2007), Carnes et al. (1991), Lahaye et al. (2011), Birz and Lott (2011), Birz and Dutta (2015)].

Second, “macroeconomic surprises” – a popular measure of news calculated as the difference between the released statistic and its expected value, which is revealed earlier by a median survey response of financial market participants – may not be a good measure of news as it fails to incorporate how the same surprise may mean different things to investors in different economic conditions.

Due to the above limitations of mainstream methodologies, the goal of this study is to follow Birz and Lott (2011) and employ their classification of newspaper coverage of economic releases to study the effect of the U.S. macroeconomic news on foreign stock markets. In particular, we study the effect of the U.S. unemployment rate newspaper coverage on the international stock prices. There are two distinct advantages of this method. Firstly, the dataset used in Birz and Lott (2011) is comprised of the classification of newspaper headlines on the unemployment rate, which is one of the most important indicators of the economic conditions in the U.S. Secondly, in addition to indicating the unexpected information of economic releases, newspaper coverage of economic releases also provides the meaning of macroeconomic releases in various economic conditions.

Our study provides two important contributions. First, we find that the U.S. unemployment rate news are important for 12 international stock markets out of 15 examined markets. Second, our results show that newspaper coverage is a superior measure of macroeconomic news as compared with macroeconomic surprises. We believe it is because newspaper coverage not only captures the surprise component of economic releases but also provides interpretation of economic releases in different economic conditions. Finally, similarly to research examining the effect of domestic macroeconomic news on domestic stock prices we find that good (bad) economic news in the expansionary stage of the business cycle in the U.S. decreases (increases) international stock returns.

The remainder of the paper is organized as follows. Section 2 will describe our methodology and the data. Section 3 will provide the discussion of our empirical results. We will conclude in Section 4.

2. Data and Methodology

2.1 News Index

To quantify the net effect of positive and negative news stories following the release of the unemployment rate, we calculate news index similarly to Birz and Lott (2011) and Birz (2015). For ease of usage and interpretation, we also normalize the index by dividing it by its standard deviation:

$$News\ Index = (\% Positive - \% Negative + 100) / \sigma \quad (1)$$

The classification of newspaper headlines (positive or negative) utilized to calculate News Index is from Lott and Hassett (2014) who used LexisNexis database and collected newspaper articles from 389 newspapers. Each headline was analyzed and classified by a team of research assistants as positive, negative, neutral, or mixed. (Note 1) Neither Lott nor Hassett participated in classification of headlines to avoid bias in data collection. Lott and Hassett compared classifications of each research assistant and did not find any disagreements. Overall, the sample consisted of 12,620 headlines. Headlines had to acknowledge the release of the economic data series to be included in the Lott and Hassett sample. The Lott and Hassett dataset covers the period between January 1991 and May 2004. Some of the equity price indices in Datastream are not available until 1994. Consequently, the sample of this study is restricted to a 10-year sample with 127 observations.

Table 1 reports the summary statistics of positive, negative, neutral and mixed news stories published by all newspapers in the sample, as well as the statistics on the News Index.

Table 1. Daily Summary Statistics for News Stories from All Newspapers (1994-2004)

	Average	Std. Dev.	Min	Max
Unemployment New Stories				
Total	33.68	11.01	15	68
Positive	13.21	13.23	0	50
Negative	10.93	13.51	0	60
Neutral	0.95	1.87	0	9
Mixed	8.59	5.33	0	26
News Index	1.25	1	0	2.38
Unemployment Surprise	-0.25	1	-2.62	2.62

2.2 Other Data

To show that newspaper coverage is a superior measure of economic news, i.e. it contains additional information that is not captured by surprises, we include U.S. unemployment surprises as a control variable. Surprises are calculated as in Andersen, Bollerslev, Diebold, and Vega (2003, 2007). First, we calculate the difference between the values of released statistics and their expected values. Second, we divide this difference by its sample standard deviation. Therefore, the surprise for the unemployment rate announcement is

$$S = \frac{A-F}{\sigma} \quad (2)$$

where A is the value of the released unemployment rate, F is the expected value of the unemployment rate provided by Money Market Services survey (MMS), forecasts, and σ denotes the sample standard deviation of $A - F$. MMS is the most popular source of economic forecasts in existing literature. Every Friday, MMS surveys market participants on the variables scheduled to be released during the following week. The surveys are conducted in the morning by phone, email or fax and the results of the surveys become available in the late afternoon. (Note 2)

To measure the impact of macroeconomic news on international stock prices, we utilize monthly Datastream Global Country Indices. We examine stock markets of 15 different countries that existing research has previously looked at assuming the data were available in Datastream. In particular, we examine whether newspaper coverage of unemployment releases affects equity returns in Argentina (ARG), Brazil (BRA), Canada (CAN), Mexico (MEX), Austria (AUS), Denmark (DEN), France (FR), Germany (GER), Italy (ITA), Norway (NOR), Poland (POL), Spain (SPA), Sweden (SWE), United Kingdom (UK), and Japan (JPN). While the impact of the U.S. economic news on the U.S. stock prices is often evaluated with daily or high-frequency prices, the effect of the U.S. economic news may not be quickly reflected in foreign prices as foreign investors and governments require time to formulate domestic economic and investment strategies. Using monthly prices also allows controlling for a potential issue with reverse causation related to daily prices as discussed in Birz and Lott (2011). Thus, we examine whether month's $t-1$ unemployment rate announced by BLS and covered by the media during month t has a statistically and economically significant effect on month t stock returns measured as percentage change in end-of-month index prices of month t and month $t-1$. (Note 3)

3. Results

To determine whether newspaper coverage of the U.S. macroeconomic news affects international stock prices, we begin by utilizing univariate regressions. In particular, we regress each country's equity returns of month t on the News Index (t), i.e. the newspaper coverage of the unemployment rate of month ($t-1$), which is released by the BLS and covered by the media during the first Friday of month t . The results are reported in Table 2.

In Panel A of Table 2, the results show that the coefficients are statistically and economically significant for 11 out of 15 examined countries. For example, a one standard deviation increase in the News Index decreases monthly stock returns in Argentina by 2.3 percent and the coefficient is statistically significant at the 5% confidence level.

Table 2. Newspaper Stories about U.S. Unemployment and International Stock Prices

Panel A: The Effect of U.S. Unemployment News on International Equity Indices (without controls)

	ARG	BRA	CAN	MEX	AUS	DEN	FR	GER	ITA	NOR	POL	SPA	SWE	UK	JPN
News	-2.30*	-2.67*	-0.92*	-1.27	-0.76*	-0.91*	-1.00*	-0.38	-1.11*	-1.39*	-2.83*	-1.10*	-1.23*	-0.47	-0.84
Index	(-2.38)	(-2.53)	(-2.01)	(-1.47)	(-1.83)	(-2.00)	(-2.01)	(-0.75)	(-1.80)	(-2.22)	(-2.57)	(-2.18)	(-1.74)	(-1.17)	(-1.41)
Constant	0.14	0.73	1.05	1.23	0.42	1.03	1.02	0.7	1.084	1.03	0.63	1.12	1.44	0.86	0.55
	(0.15)	(0.70)	(2.31)	(1.43)	(1.01)	(2.27)	(2.06)	(1.57)	(1.79)	(1.65)	(0.57)	(2.23)	(2.06)	(2.19)	(0.94)
Control	No														
N	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128
F	5.68	6.41	4.03	2.15	3.35	3.99	4.04	0.57	3.24	4.91	6.61	4.76	3.03	1.37	1.98
R ²	0.04	0.06	0.03	0.02	0.03	0.03	0.03	0.00	0.03	0.04	0.06	0.04	0.02	0.01	0.02

Panel B: The Effect of U.S. Unemployment News on International Equity Indices, Controlling for Unemployment Surprises

	ARG	BRA	CAN	MEX	AUS	DEN	FR	GER	ITA	NOR	POL	SPA	SWE	UK	JPN
News	-2.29**	-2.64***	-0.91**	-1.17	-0.74*	-0.93**	-1.06**	-0.40	-1.08*	-1.42**	-2.85***	-1.08**	-1.26*	-0.49	-0.81
Index	(-2.36)	(-2.49)	(-1.96)	(-1.36)	(-1.76)	(-2.02)	(-2.11)	(-0.80)	(-1.75)	(-2.24)	(-2.59)	(-2.13)	(-1.78)	(-1.22)	(-1.36)
UNE	-0.14	-0.57	-0.22	-1.38	-0.37	0.20	0.71	0.35	-0.37	0.35	1.07	-0.26	0.47	0.29	-0.32
Surp	(-0.14)	(-0.49)	(-0.46)	(-1.53)	(-0.84)	(0.41)	(1.36)	(0.67)	(-0.57)	(0.53)	(0.92)	(-0.50)	(0.64)	(0.69)	(-0.52)
Const	0.10	0.60	0.99	0.87	0.32	1.08	1.20	0.87	0.99	1.12	0.91	1.05	1.56	0.94	0.47
	(0.11)	(0.55)	(2.10)	(0.98)	(0.75)	(2.29)	(2.35)	(1.69)	(1.57)	(1.73)	(0.80)	(2.01)	(2.16)	(2.29)	(0.76)
Contr	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
N	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128
F	2.83	3.30	2.11	2.26	2.03	2.07	2.96	0.50	1.78	2.58	3.72	2.49	1.71	0.92	1.12
R ²	0.04	0.06	0.03	0.03	0.03	0.03	0.05	0.01	0.03	0.04	0.06	0.04	0.03	0.01	0.02

Panel C: The Effect of U.S. Unemployment News on International Equity Indices, with Time Series Controls and Surprises

	ARG	BRA	CAN	MEX	AUS	DEN	FR	GER	ITA	NOR	POL	SPA	SWE	UK	JPN
News	-2.42***	-2.28***	-1.04**	-1.56*	-0.73*	-0.86*	-1.00**	-0.42	-1.00*	-1.42*	-2.33***	-1.02**	-1.18*	-0.45	-0.91
Index	(-2.47)	(-2.11)	(-2.19)	(-1.78)	(-1.74)	(-1.85)	(-1.95)	(-0.82)	(-1.60)	(-1.70)	(-2.09)	(-1.97)	(-1.67)	(-1.09)	(-1.51)
UNE	0.05	-0.26	-0.13	-1.38	-0.37	0.16	0.66	0.32	-0.41	0.38	0.51	-0.35	0.17	0.22	-0.29
Surp	(0.05)	(-0.23)	(-0.25)	(-1.54)	(-0.85)	(0.34)	(1.22)	(0.58)	(-0.62)	(0.55)	(0.43)	(-0.65)	(0.24)	(0.50)	(-0.46)
Const	0.10	0.60	0.99	0.87	0.32	1.08	1.20	0.87	0.99	1.12	0.91	1.05	1.56	0.94	0.47
	(0.11)	(0.55)	(2.10)	(0.98)	(0.75)	(2.29)	(2.35)	(1.69)	(1.57)	(1.73)	(0.80)	(2.01)	(2.16)	(2.29)	(0.76)
Contr	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128
F	1.81	1.73	1.45	2.24	1.39	1.44	1.27	0.26	0.77	1.71	1.19	1.34	0.83	0.46	1.12
R ²	0.06	0.08	0.06	0.08	0.05	0.06	0.05	0.01	0.03	0.07	0.05	0.05	0.03	0.02	0.02

The table shows the results of 15 (one for each country) regressions explaining the effect of the unemployment news stories on stock indices. The dependent variable is percentage change in the end-of-month index prices of month t and month $t-1$. *News Index* was calculated to account for the effect of both positive and negative news stories on the release of the unemployment rate during month $t-1$: $(\% \text{ Positive} - \% \text{ Negative} + 100) / \sigma$. UNE Surprises measure the unexpected component of unemployment releases and are calculated as in Andersen, Bollerslev, Diebold, and Vega (2003, 2007). *Contr* denotes control variables, which include two lags of stock returns, and a January dummy. N = number of observations, t -values are reported in the parentheses. * denotes significance at the 10% level; ** denotes significance at the 5% level; *** denotes significance at the 1% level.

The fact that positive news coverage of the unemployment rate releases leads to lower stock prices is not surprising. Most of the observations in our sample (120 out of 128) are months that are classified as the expansionary stage of the business cycle in the U.S. according to both the NBER and XRIC indices. Thus, our results are consistent with previous research that claims that good economic news leads to a decrease in stock returns during booms as it signals a potential increase in future interest rates [e.g. Boyd et. al. (2005) and McQueen and Roley (1993)].

In Panel B of Table 2, we test whether newspaper coverage of unemployment releases contains information that is not included in unemployment surprises. To do so, we add surprises to the specification shown in Panel A. Even after controlling for surprises, coefficients on the News Index remain economically and statistically significant. This shows that it is not only unexpected macroeconomic information that affects stock prices but also the way in which this information is covered and interpreted by the investors.

Finally in Panel C of Table 3, we include standard time series controls such two lags of stock returns and a January dummy to ensure our results are not biased by residual autocorrelation and the “January” effect, respectively. Even after the inclusion of these controls, the results remain as the same. In fact, the coefficient on the News Index for Mexico becomes statistically significant at the 10% confidence level.

4. Conclusion

The main goal of this paper is to examine whether the U.S. unemployment news affects international stock prices. To do this, we utilize newspaper coverage of the U.S. unemployment rate releases as a measure of news. We find statistically and economically significant correlations between the tone of news stories on unemployment and stock returns in 12 countries. We believe that this finding provides significant contribution to the existing literature in two ways. First, it provides empirical evidence to support the argument that domestic economic news may impact international stock prices. Second, it shows that newspaper coverage of macroeconomic releases may be a superior measure of economic news for international investors as it not only captures the surprise component of economic releases but may also provide the meaning of these releases in various economic environments.

References

- Albuquerque, R., & Vega, C. (2009). Economic News and International Stock Market Co-movement. *Review of Finance*, 13(3), 401-465. <http://dx.doi.org/10.1093/rof/rfn020>
- Andersen, T.G., Bollerslev, T. (1998). Deutsche mark-dollar volatility: intraday activity patterns, macroeconomic announcements, and longer run dependencies, *Journal of Finance*, 53, 219-265. <http://dx.doi.org/10.3386/w5783>
- Andersen, T.G., Bollerslev, T., Diebold, F.X., Vega, C. (2003). Micro effects of macro announcements: Real-time price discovery in foreign exchange. *American Economic Review*, 93, 38-62. <http://dx.doi.org/10.1257/000282803321455151>
- Andersen, T.G., Bollerslev, T., Diebold, F.X., Vega, C. (2007). Real-time price discovery in global stock, bond and foreign exchange markets, *Journal of International Economics*, 73, 251-277. <http://dx.doi.org/10.1016/j.jinteco.2007.02.004>
- Bialkowski, J., Bohl, M. T., & Serwa, D. (2006). Testing for financial spillovers in calm and turbulent periods. *The Quarterly Review of Economics and Finance*, 46(3), 397-412. <http://dx.doi.org/10.1016/j.qref.2006.04.001>
- Birz, Gene. (2015). Stale Economic News, Media, and the Stock Market, SSRN Working Papers. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2136291
- Birz, Gene & John R. Lott, Jr. (2011). The Effect of Macroeconomic News on Stock Returns: New Evidence from Newspaper Coverage, *Journal of Banking & Finance*, 35, 2791-2800. <http://dx.doi.org/10.1016/j.jbankfin.2011.03.006>

- Boyd, J. H., Hu, J., Jagannathan, R. (2005). The Stock market's reaction to unemployment news: Why bad news is usually good for stocks, *Journal of Finance*, 60, 649-670. <http://dx.doi.org/10.1111/j.1540-6261.2005.00742.x>
- Cakan, E., Doytch, N., & Upadhyaya, K. P. (2015). Does US macroeconomic news make emerging financial markets riskier?. *Borsa Istanbul Review*, 15(1), 37-43. <http://dx.doi.org/10.1016/j.bir.2014.10.002>
- Carnes, W. Stansbury & Slifer, Stephen D. (1991). *The Atlas of Economic Indicators*. Harper Collins Publishers, Inc.
- Connolly, R. A., & Wang, F. A. (2003). International equity market comovements: Economic fundamentals or contagion?. *Pacific-Basin Finance Journal*, 11(1), 23-43. [http://dx.doi.org/10.1016/S0927-538X\(02\)00060-4](http://dx.doi.org/10.1016/S0927-538X(02)00060-4)
- Lahaye, J., Laurent, S., Neely, C.J. (2011). Jumps, cojumps and macro announcements. *Journal of Applied Econometrics*, 26, 893-921. <http://dx.doi.org/10.1002/jae.1149>
- Lott Jr, J. R., & Hassett, K. A. (2014). Is newspaper coverage of economic events politically biased?. *Public Choice*, 160(1-2), 65-108. <http://dx.doi.org/10.1007/s11127-014-0171-5>
- McQueen, G., Roley, V.V. (1993). Stock prices, news and business condition, *Review of Financial Studies*, 92, 307-328. <http://dx.doi.org/10.1093/rfs/5.3.683>
- Nikkinen, J., Omran, M., Sahlström, P., & Äijö, J. (2006). Global stock market reactions to scheduled US macroeconomic news announcements. *Global Finance Journal*, 17(1), 92-104. <http://dx.doi.org/10.1016/j.gfj.2006.06.003>
- Singh, M., Nejadmalayeri, A., & Lucey, B. (2013). Do US macroeconomic surprises influence equity returns? An exploratory analysis of developed economies. *The Quarterly Review of Economics and Finance*, 53(4), 476-485. <http://dx.doi.org/10.1016/j.qref.2013.05.002>

Notes

Note 1. Below are the examples of the Lott and Hassett classification of headlines:

“Economy Remained Strong in 4th Quarter, US Reports,” NY Times, 01/31/2004 – positive

“March Jobs Growth Worries Homebuilding Industry,” Dallas Morning News, 04/03/2004 – mixed

“Reports Indicate Economy Could be Heading for Stall,” Palm Beach Post, 02/16/96 – negative

“Jobless level stays at 7.1%,” Chicago Sun-Times, 02/07/92 – neutral

Note 2. MMS data were purchased from Haver Analytics. According to Haver Analytics, MMS has the most complete history of consensus data (forecast survey medians) and “as first reported” (unrevised) actuals of major macroeconomic indicators for the U.S. MMS conducts weekly surveys of market participants, which include economists and strategists from major commercial banks, top brokerage houses, consulting firms and fund management companies.

Note 3. BLS always releases the unemployment rate of each month on the first Friday of the following month at 8:30am.