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Bernd Hayo and Matthias Neuenkirch

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Coordination: Bernd Hayo • Philipps-University Marburg
Faculty of Business Administration and Economics • Universitätsstraße 24, D-35032 Marburg
Tel: +49-6421-2823091, Fax: +49-6421-2823088, e-mail: hayo@wiwi.uni-marburg.de

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Bernd Hayo and Matthias Neuenkirch

Philipps-University Marburg

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Corresponding author:

Matthias Neuenkirch
Faculty of Business Administration and Economics
Philipps-University Marburg
D-35032 Marburg
Germany
Tel.: +49(0)6421-2823090
Fax: +49(0)6421-2823088
Email: m.neuenkirch@wiwi.uni-marburg.de

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ABSTRACT

In the literature, central bank communication is identified via either (i) the written content of original communications or (ii) newswire reports. We examine how (i) Bank of Canada communications and (ii) media reporting on them impacts Canadian bond and stock market returns using a GARCH model over the period 1998–2006. Official communications exert a relatively larger influence on the bond market, whereas media coverage is more relevant for the stock market. In general, media filtering does not appear to play a prominent role.

JEL: E52, G14, G15

Keywords: Bank of Canada, Central Bank Communication, Financial Markets, Media Coverage, Monetary Policy

I. INTRODUCTION

In recent literature, central bank communication is identified via either (i) (the interpretation of) newswire reports (e.g., Ehrmann and Fratzscher, 2007) or (ii) the written content of original communications (e.g., Hayo et al., 2008). Financial markets react noticeably when either identification channel is used. In the case of Federal Reserve (Fed) communications, there is preliminary evidence that “*financial market news is not necessarily created at the time when the information becomes available, but comes into existence only after it goes through a filtering process by the media*” (Hayo et al., 2008, 21–22). Individual news recipients seemingly ignore relevant information, probably because it is too costly to acquire, and depend on information filters to cope with the flood of daily information.¹

In this paper, we explore differences in financial market reaction to newswire reports *and* original communications. Canada is an interesting country for a case study since communications by the Bank of Canada (BOC) are well documented. Furthermore, Canada has advanced financial markets, a fact that should ensure frequent coverage of monetary policy events by news agencies. Hayo and Neuenkirch (2010) show that BOC communications exert a significant and economically relevant impact on Canadian financial market returns. Their approach implicitly assumes that financial markets automatically process news at the time the information becomes available. We extend their data set and analyse *all types of BOC communications and media reporting on them* (Reuters, *The Globe and Mail*, *National Post*, and *Canadian Press*) regarding monetary policy and economic outlook.

We address two specific research questions: (1) To what extent is Canadian central bank communication covered by the media? (2) Does media coverage initiate larger reactions on Canadian bond and stock markets than the original communications? To our knowledge, this is the first study to systematically compare the financial market impact of (i) original communications, (ii) reports on these communications in leading national newspapers, and (iii) international news agency coverage of same.

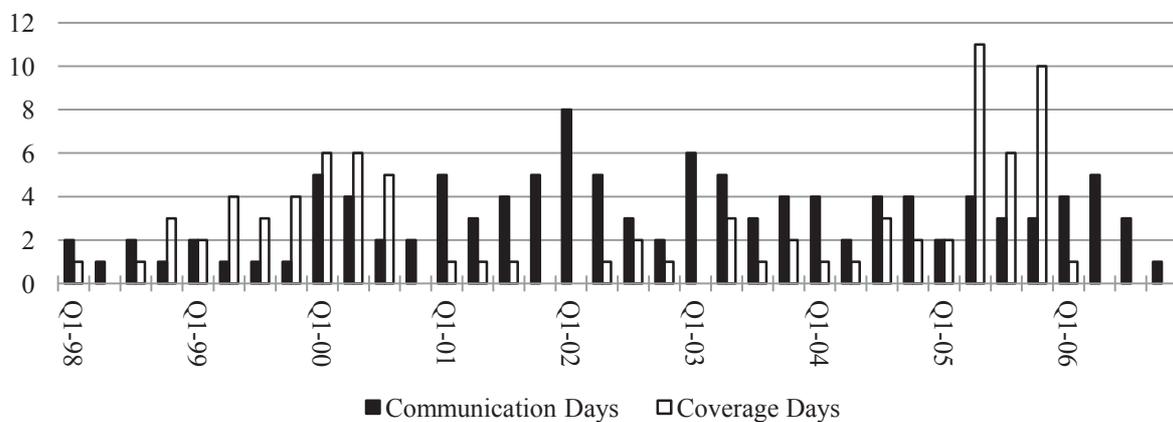
II. DATA

We start with the same data set used in Hayo and Neuenkirch (2010). Coding of the dummy variables for the Canadian economic outlook communications is either “positive” (EO+) or “negative” (EO-); “tightening” (MP+) or “easing” (MP-) are the categories for monetary policy communications. There are 12 communication dummies as each type of

¹ Sims (2003) provides a theoretical framework for information-processing constraints in macroeconomic models.

communication (statements, monetary policy reports, congressional hearings and speeches) can be coded into four different categories (EO+, EO-, MP+, MP-). The data set is extended by including the world's largest newswire agency, Reuters, and three major Canadian newspapers: *The Globe and Mail*, *National Post* (formerly *Financial Post*), and *Canadian Press*. Over the sample period of January 1, 1998 to December 31, 2006, we systematically review the daily announcements available on the respective websites. We collect new stories if they concern Bank of Canada communications related to economic outlook or monetary policy inclination. Figure 1 provides an overview of how central bank communication days and media coverage days are distributed over the sample period.

FIGURE 1: Communication Days vs. Coverage Days



There is slightly more media coverage about communication (142; represented by transparent bars in Figure 1) than original communication events themselves (116; represented by black bars), but the original events are more uniformly distributed over the sample period. There are two phases during which Canadian central bank communication received relatively intense media attention. The first one is from Q2-1999 to Q3-2000, which is the period before the BOC introduced a fixed schedule of interest rate decision days (fixed announcement dates). During this period, financial market agents (and the media) were uncertain as to which day the BOC would change its target for the overnight rate. The second phase of intensified coverage is from Q2-2005 to Q4-2005. During this time span, there was great uncertainty about when and to what extent the BOC would re-join the Fed's tightening cycle.

In our analysis, we differentiate between the original source and media coverage by Reuters and the major newspapers.² We check whether (1) there is *no media coverage* of

² As there are very few observations for some categories in a particular newspaper, we construct summary variables for all three newspapers.

original communication, (2) the coverage *matches* the original source, (3) the coverage *deviates* from the original source (shows an obviously different interpretation than the original wording), or (4) the coverage is an *exclusive* report of central bank communication insofar as there is no original communication on either the reporting day or the day before.³ Thus, in the case of Reuters and newspaper coverage, we differentiate between ‘matching’, ‘deviant’, and ‘exclusive’ and assign these the same subcategories used for sorting original communications (EO+, EO–, MP+, MP–).⁴

III. ECONOMETRIC METHODOLOGY

Our Canadian financial market indicators comprise daily closing interest rates on government securities and daily returns on stock markets for the period January 1998 through December 2006. We study daily changes in three-month, six-month, and one-year Treasury bills and two-year Treasury notes and rates of change on the Toronto Stock Exchange Index (TSX). A GARCH(1,1) specification with t-distributed errors (Engle, 1982; Bollerslev, 1986) is the starting point of our analysis. It is then simplified in a consistent general-to-specific testing-down process (Hendry, 1995) at a 5% significance level to increase estimation efficiency.⁵

$$(1) \text{Returns}_t = \gamma + \sum_{r=1}^6 \delta_r \text{Financial Control Variables}_{t-r} + \zeta \text{Control Variables} \\ + \eta \text{Media Coverage Dummies} + \theta \text{Communication Dummies} + \mu_t, \\ \mu_t = \epsilon_t h_t^{1/2}, \\ h_t = \alpha_0 + \alpha_1 \mu_{t-1}^2 + \beta_1 h_{t-1},$$

where $\alpha_0, \alpha_1, \beta_1, \mu, \gamma, \delta, \zeta, \eta, \theta,$ and ι are parameters or vectors of parameters and $\epsilon_t | \Gamma_{t-1} = t(v)$. Γ_{t-1} captures all information up to $t-1$, and $t(v)$ is a t-distribution with v degrees of freedom. The vector of financial controls contains lagged returns, Canadian and U.S. stock and bond returns, and CAD/USD and CAD/EUR spot market returns. Other control variables are changes in Canadian and U.S. target rates, the surprise component of several commonly watched macroeconomic announcements from both countries, and an impulse dummy for

³ Media coverage does not necessarily have to be preceded by an official communication documented on the BOC website. News agencies and newspapers sometimes refer to informal interviews by central bank officials or provide analyses of past minutes and forecasts.

⁴ In case of deviant coverage, MP+ (MP–) implies a tighter (easier) monetary policy stance than provided by the original communication, whereas EO+ (EO–) refers to a brighter (worse) economic outlook.

⁵ Diagnostic testing of preliminary OLS estimations reveals significant ARCH effects. The final GARCH(1,1) models sufficiently remove these ARCH effects.

9/11.⁶ Contemporaneous returns are excluded to avoid simultaneity problems. Bank of Canada communications and media coverage variables enter the equation when they actually hit the market. For example, a speech (or a newswire report about a speech) made after market closure hits the market the following day.

IV. EMPIRICAL ANALYSES

Table 1 shows the reaction of Canadian bond and stock market returns to central bank communication and its media coverage.⁷ All coefficients of the BOC communications not covered in the media show the expected sign, whereas signs of several coverage variables are counterintuitive. Communication (newspaper) variables are relatively more important on bond (stock) markets. On bond markets, media coverage is relevant when it provides an obviously *different* interpretation than suggested by the official communication. On the stock market, media information is particularly influential when it *exclusively* reports monetary policy news, i.e., when there is no BOC communication on either the reporting day or the day before.

It is unclear whether the original source or its coverage in the media has a statistically larger impact across all markets. Moreover, in terms of financial market impact, the coefficient estimates presented above could be misleading, as some types of news appear more frequently than others. Therefore, we compare the impact by taking into account the frequency of news (i.e., the number of events per indicator). Table 2 shows the cumulative impact on returns per category on each market in our sample.

Official central bank communication has a greater cumulative impact across all bond maturities than the other news sources—even when it is not picked up by the media. This is particularly evident for the longer maturities, where its impact is at least three times higher than that of media coverage. In contrast, the stock market's reaction is largely dominated by relevant reports in major national newspapers. Finally, Reuters coverage does not figure prominently in the transmission of BOC communications to Canadian financial markets.

V. CONCLUSIONS

In this paper, we explore the differences in reaction to newswire reports and original communication, using Canada as a case study. We examine the impact of all types of BOC

⁶ Data sources: Bond and foreign exchange market series: Federal Reserves' Statistical Releases H15 and Bank of Canada's statistical database; stock market series: Datastream. Surveys of macroeconomic announcements: Bloomberg newswire.

⁷ The coefficients can be interpreted as follows: -0.026 (-0.58) denotes a decrease of 2.6 (58) bps in three-month interest rates (TSX index) after a negative economic outlook in a monetary policy report.

communications and media reporting on them (Reuters, *The Globe and Mail*, *National Post*, and *Canadian Press*) on Canadian bond and stock market returns using a GARCH model.

TABLE 1: Regression Estimates for Bond and Stock Market Returns

	3-Month	6-Month	1-Year	2-Years	TSX
Newspaper					
Exclusive MP +		0.018 **			-0.50 *
Exclusive MP -					1.17 **
Exclusive EO +					0.44 **
Exclusive EO -					-1.13 **
Deviant MP Tighter	0.012 **		0.022 *		
Deviant MP Easier		0.072 **	0.091 **	0.123 **	-0.84 **
Deviant EO Worse				-0.087 **	
Matching MP +	-0.014 **	-0.012 **			-0.68 **
Reuters					
Exclusive MP -	0.012 **				
Deviant MP Tighter	0.017 **				
Deviant EO Brighter	0.044 **				-2.11 **
Deviant EO Worse	-0.015 **	-0.036 **	-0.072 **		-0.55 *
Matching MP +				0.022 *	
Matching EO -	-0.017 **		-0.059 **	-0.059 **	
No Media Coverage					
Statement MP +					-0.46 **
Statement EO +		0.026 *	0.036 **	0.039 **	
Statement EO -		-0.038 **	-0.064 **	-0.071 **	
MPR EO +				0.023 **	
MPR EO -	-0.026 **	-0.041 **	-0.062 *	-0.058 **	-0.58 **
Speech/Test. MP +	0.019 **	0.025 **	0.043 **		
Speech/Test. MP -	-0.010 **	-0.026 **	-0.022 **	-0.047 **	
Speech/Test. EO +				0.031 **	
Speech/Test. EO -		-0.031 **	-0.042 **	-0.047 **	-0.34 *

Notes: * (**) indicates significance at a 5% (1%) level. Number of observations: 2,169. Robust standard errors (Bollerslev and Wooldridge, 1992) are used. Only the variables of interest of the reduced model resulting from the testing-down process are listed. Full tables are available upon request. EO = Economic Outlook; MP = Monetary Policy.

TABLE 2: Cumulative Absolute Returns for Bond and Stock Markets

	3-Month	6-Month	1-Year	2-Years	TSX
Newspaper	0.15	0.46	0.49	0.72	25.9
Reuters	0.23	0.07	0.38	0.42	3.2
No Media Coverage	0.42	2.07	3.14	3.87	12.8

Note: The figures are calculated by taking the absolute estimates from Table 1, which are then multiplied by the respective frequency of news and aggregated into the three sources (newspapers, Reuters, original source).

BOC communications are rather uniformly distributed over the sample period, whereas media coverage is particularly high during two phases of heightened uncertainty about the future course and timing of Canadian monetary policy. In the case of the bond market, more BOC communication variables cause a significant reaction, whereas on the stock market, newspapers dominate. Media coverage is notably relevant when its interpretation of the BOC communication deviates from the original wording or when it is an exclusive report about central bank communication. Reuters coverage does not play a prominent role in the transmission of central bank communication across Canadian financial markets.

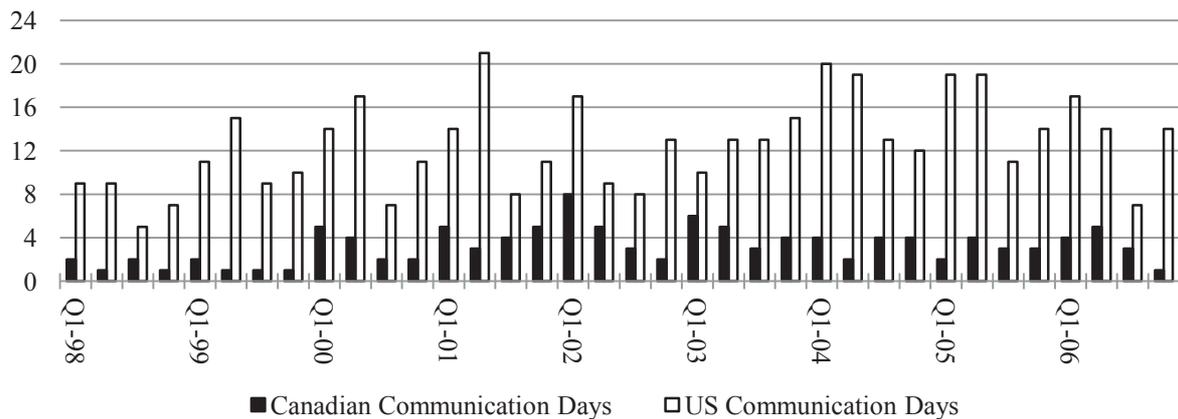
In general, media filtering plays a less prominent role in Canada than it does in the United States (see Hayo et al., 2008), with the exception of the stock market. Canadian market participants directly monitor central bank communication and do not rely on newspapers or news agencies for information.⁸ There are at least two crucial differences between Canadian and U.S. central bank communication that might explain the difference in findings for these countries. First, the Bank of Canada has a clear inflation-targeting mandate, whereas the Federal Reserve Bank has more discretion as to monetary policy due to its dual mandate. The inflation target makes monetary policy more predictable and thus attracts less media attention. Second, Bank of Canada officials use communication less frequently than do their Fed counterparts. Figure 2 compares Canadian communication days (black bars) and U.S. communication days (transparent bars). Market participants in the United States are flooded with official communications from members of the Fed and, therefore, rely on newswire filtering, whereas Canadian market participants can quite easily monitor BOC communication without the aid of filtering.

Canadian financial markets move in the intended direction after BOC communications and the communications do not require media filtering. Therefore, from the findings of this paper, it is not clear whether the BOC should alter its communication strategy.⁹

⁸ This paper does not provide a clear answer as to when and why financial market agents directly monitor central bank communication or rely on newswire services. This question could be addressed by a survey of financial market participants, an endeavour we leave for future research.

⁹ However, Hayo and Neuenkirch (2011) show that the more frequent Fed communications outperform BOC communications in explaining Canadian interest rate decisions. Thus, the BOC might consider increasing its frequency of communication to ensure that private markets are able to form precise expectations of interest rate decisions.

FIGURE 2: Canadian Communication Days vs. U.S. Communication Days



REFERENCES

- Bollerslev, T. (1986), Generalized Autoregressive Conditional Heteroscedasticity, *Journal of Econometrics* 31 (3), 307–327.
- Bollerslev, T. and Wooldridge, J. (1992), Quasi-Maximum Likelihood Estimation and Inference in Dynamic Models with Time Varying Covariances, *Econometric Reviews* 11 (2), 143–172.
- Ehrmann, M., and Fratzscher, M. (2007), Communication by Central Bank Committee Members: Different Strategies, Same Effectiveness? *Journal of Money, Credit and Banking* 39 (2–3), 509–541.
- Engle, R. (1982), Autoregressive Conditional Heteroscedasticity with Estimates of the Variance of United Kingdom Inflation, *Econometrica* 50 (4), 987–1008.
- Hayo, B., Kutan, A., and Neuenkirch, M. (2008), Communicating with Many Tongues: FOMC Speeches, Media Coverage, and U.S. Financial Market Reaction, *MAGKS Joint Discussion Paper Series in Economics* 08–2008.
- Hayo, B. and Neuenkirch, M. (2010), Domestic or U.S. News: What Drives Canadian Financial Markets? *Economic Inquiry*, DOI: 10.1111/j.1465-7295.2010.00358.x.
- Hayo, B. and Neuenkirch, M. (2011), Canadian Interest Rate Setting: The Information Content of Canadian and U.S. Central Bank Communication, *Southern Economic Journal* 78 (1), 131–148.
- Hendry, D. (1995), *Dynamic Econometrics*, Oxford University Press: Oxford.
- Sims, C. A. (2003), Implications of Rational Inattention, *Journal of Monetary Economics* 50 (3), 665–690.