

# One minute in the life of the DM/US\$: Public news in an electronic market

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## Abstract

Public news can be expected to change market prices but, unlike “public information,” there are differing expectations about the impact. Hence trading is necessary for the market to process these divergent views. A surprise announcement of an increase in German interest rates coupled with concurrent transactions data enables us to study in detail dealers’ reactions. The patterns observed are consistent with dealers’ practice to book targeted profits immediately if possible in the face of uncertainty. Evidence also shows that the speculative activity by traders in initial reaction to the news destabilized the market for the next 2 h.

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## 1. Introduction

What causes asset prices, including foreign exchange rates, to change? What are the mechanisms by which these changes occur? These questions have generated a huge literature in both economics and finance. Here we will focus on the foreign exchange market and, by concentrating in

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considerable detail on the transactions following a specific news announcement, enhance our understanding of the relationships among public news, dealer trading, and exchange-rate changes.

While short-run movements in exchange rates are not well correlated with changes in macroeconomic variables, many announcements do appear to have significant impacts on exchange rates. For a recent example, see [Andersen et al. \(2003\)](#). In their thorough study, they find that prices adjust fully to news immediately (within 5 min) while volatilities adjust gradually with complete adjustment within about an hour. They comment (p. 59) that it “will be of interest ... to determine whether news affects exchange rate via order flow or instantaneously.” Order flow in an interdealer market is buyer-initiated minus seller-initiated trades.

As is well known, in principle a price response to new public information can take place without any trades. According to [Fleming and Remolona \(1999, p. 1901\)](#), “Theory (e.g., [French and Roll, 1986](#)) identifies public information as that which affects prices before anyone can trade on it.” In a foreign exchange market, this might happen when dealer quotes are only indicative and actual deals are struck over the telephone. If all dealers agree on a new market value after a public announcement, all prior quotes become obsolete. New quotes appear and trading can continue as usual around a markedly changed market price, without order flow during the change. This concept constitutes a standard simplification in the analysis of market microstructure that public information does not affect the impact of concurrent order flows (see [Hasbrouck, 1991](#) as an example).

We will use the term *public news* for a situation in which there is uncertainty about the market impact of new information made available to all market participants at the same time. This terminology will avoid any potential confusion with the French and Roll concept of public information. The idea of divergent mappings from information to prices is discussed by [Lyons \(2001, p. 21\)](#) as one reason why order flow conveys information to the market and therefore tends to move price. See also [Isard \(1995, pp. 182–183\)](#).

[Evans \(2002\)](#) makes a useful distinction between common knowledge (CK) and non-common knowledge public news. “CK news is characterized by the simultaneous arrival of new information to all market participants and their homogeneous interpretation of its implications for equilibrium prices.” (p. 2406). Based on his statistical analysis of exchange-rate changes and order flow, Evans concludes that CK news shocks are rarely the predominant source of exchange-rate movements over long or short horizons.

[Love and Payne \(2003\)](#) estimate more directly the impact of several types of public announcements on the interactions between order flow and exchange-rate changes. They conclude that nearly two thirds of price relevant public information is incorporated into prices via the trading process. While Love and Payne look at directional effects, [Evans and Lyons \(2003\)](#) have similar results in terms of variance of exchange rates induced by news. Their bottom line in accounting for daily return variation is roughly: “10 percent direct news effects, 20 percent news-related flow, 40 percent news-unrelated flow, and 30 percent still unaccounted for” (p. 33).

Clearly there is interest in the role of trading when a public announcement can be expected to change the equilibrium exchange rate. The studies cited above generally estimate fixed coefficient statistical models, but the process behind the coefficients is largely conjecture. To enhance our understanding of the complex interactions that can take place when news hits a foreign exchange market, we will examine the tick-by-tick transactions in an electronic foreign exchange market for DM/US\$ immediately following a surprise announcement by the Bundesbank at 11:30 Greenwich Mean Time (GMT) on October 9, 1997, to raise a key interest rate. Conventional wisdom tells us that this exchange rate should drop (DM appreciation). How much of a drop is, of course, an open question.

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