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News Sentiments Intricacy: Does News Sentiments Impact Forex Market: An Event Study Approach in Perspective of Pakistan

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Abstract

This paper walk around the impact of news sentiments on foreign exchange market in context of Pakistan. To conduct the research, the selected currency pair is USD/PKR as it is the most traded currency pair in context of Pakistan. The research model is based on event study approach. Event window is created of 21 days, ten days before and 10 days after the event. Sample contains mix of scheduled and unscheduled news. Data is collected from the period of 1997 to 2018, containing five announced election results and one unscheduled news (terrorist attack). The objective of the study is to explore whether Pakistan's foreign exchange market is open to news or not and up to which extent Fama, 1971 efficient market hypothesis exist in FX market in context of Pakistan.Study found insignificant results in late nineties but with passage of time in early 2000, impact of news sentiments found significant on exchange rates. It depicts that Pakistan's foreign exchange market is moving toward efficiency with the passage of time. This study will be significant for academia, policy makers and investors.

Keywords: News sentiments intricacy • Forex market • Pakistan

Introduction

Background of the study

In recent years, a whole industry has been formed around financial market sentiment detection. Global trade don't only rely upon global capital flows but it also depends upon liquid trading mechanism of exchange currencies. Exchange rate prediction is one of the challenging tasks of modern time series forecasting. News sentiment has pointed out as one of the major source of making the exchange rate prediction. Information transmission in foreign exchange markets is a widely studied topic in academic literature. According to market efficiency theory presented by Fama, the financial assets prices must fairly reflect all publicly available information. The foreign exchange markets are perfectly suited to test this hypothesis and the impact of news, as unlike other financial markets the FX markets are constantly open and hence the immediate response of newscan be examined. According to Keynes, 1936 the animal spirit of investors have a strong impact on financial markets.Investor psychology could be crucial in explaining the relationship between news and financial markets. For instance, Hershleifer, first time established the behavioural dimension in asset pricing theory. He proposed that expected returns are not only determined by risk but also by the misevaluation due to inherited investor's behavioural biases. He proposed that we need to consider investors sentiments, generated in response of news related their underlining financial assets, while measuring risk attached to financial assets [1,2].

Similarly, Baker and Wurgler, defined investor's sentiments as optimism and pessimism about the stock in general, and it can be transmitted to financial markets; specifically the FX markets through investor's transaction and choices. Likewise, Mullainathan and Shleifer, recognized that there is market of news and the readers hold belief which they likely to see confirmed. It suggests that readers, knowingly or unknowingly, extracts sentiments based on their mental biases.Bystrom, finds that news and FX market volatility are strongly linked with each other. Impact of negative news is found somewhat stronger to stock return volatility than neutral news. Evans and Lyons linked the impact of news in the FX market to order flows. Most of the existing studies are limited to major currency exchange rates. These studies focus on the relationship between macro news and exchange rates mainly concerning developed as opposed to emerging FX markets as presented by Wongswan, As a result, the impact of news transmission in the emerging economy foreign exchange markets has not been understood completely [3-5].

This study extends the existing literature by measuring the impact of news sentiments on Foreign exchange market in context of Pakistan. This study is initiated with the objectiveto check whether Pakistani foreign exchange market respond to news, which form of market efficiency exist in Pakistani foreign exchange market and does news sentiments matters in Pakistan foreign exchange market. Research is based on event study hence studying semi strong form of market efficiency. This study measure the impact of elections results (Scheduled news)and Terrorism attacks (Un-scheduled news) on the foreign exchange rates in context of Pakistan. Event window is created of twenty days, ten days before the event and ten days after announcement of election results (1997 to 2018) and terrorist attack. Study considers USD to PKR as it is highly traded foreign exchange currency pair.

This study will contribute in existing body of knowledge by identifying how much Pakistani foreign exchange market is open to news as few studies found impact of news sentiment muted on foreign exchange rates, few of them found change in currencies prices in preannouncement period but not in post announcement period, Some studies highlightedthat the impact of news sentiments prevails on foreign exchange rates for a week in post announcement period.Hence this study close the research gap, adding in existing body of literature, by studying the behaviour of FX market of Pakistan in response of scheduled and unscheduled news. It will help investors, hedgers and financial institutions in making rational decisions regarding investment in the FX market [6,7].

This research study has been structured in five chapters; starting from introduction, leading towards specific focus agenda of i.e. literature review, Research Methodology, research Results and dissuasion and ends with

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conclusion, recommendations and directions for future researchers.

Literature Review

In past decades, literature on the news sentiments and stock market returns has been established well. In earlier studies such as Hershleifer, first time established the behavioural dimension in asset prising theory. He proposed that expected returns are not only determined by risk but also by the misevaluation due to inherited investor's behavioural biases. Mullainathan and shleifer, recognized that there is market of news and readers hold belief which they likely to see confirmed. It suggests that readers, knowingly or unknowingly, extracts sentiments based on their personal mental biases. Caporale, Spagnolo, and Spagnolo, studied the impact of macro news on exchange rates in emerging markets, impact of news is found muted in case of managed currencies. Significant spill over found only in case of foreign news in period of crisis, overall the key importance of macro news as driver of FX markets is confirmed in case of emerging economies. Previously in year 2017, they examined the effect of newspaper headlines on exchange rates (USD, EUR) for the currencies of BRICS (Brazil, Russia, India, China and South Africa). Research found similar results. Impact of macro news on FX markets differs across countries, but significant spill overs were found in number of cases and this relationship was more strengthen in period of crisis.In 2005, Evans and Lyons studied whether macro news arrivals affect currency markets overtime. Paper address an important null hypothesis within exchange rate theory, that macro news seized in exchange rates immediately [7-9].

According to a survey conducted by Cheung and Chinn, approximately 70% of the dealers were of the view that effect of announcement is absorbed by the market within one minute. Finding of the research suggests that news arrival induced changes in trading behaviour of major end user segment (such as hedge funds, mutual funds, and non-financial corporations) and such changes remain significant for days. Induced trades have also persistent effect on prices. In short research results provide strong evidence that currency markets are not responding to news instantaneously. Heiden, Klein and Zwergel, examine the relationship between investors (institutional and private) sentiments and exchange rate movements. Findings suggest that institutional sentiments significantly predict return over medium term horizon in FX market as they seems to correctly identify the medium run direction of this market, whereas private investors sentiments emerges as contrarian at first sight , however its predictive power fluctuates heavily and is dependent. Bystrom, studied impact of news, in two different languages, on stock market volatility. It is found that news and stock market volatility are strongly linked with each other, regardless of the language. Impact of negative news is found somewhat stronger connection to stock return volatility than neutral news.Uhl, 2017 studied the impact of news sentiments on foreign exchange rates. Study found significant relationship between news sentiments and FX rates. No relation between news sentiments and price momentum was found, trading strategies based on news sentiments achieve high information ratio than trading strategy based on price momentum. Bauwens, walid and Giot, studied the relationship between news announcement, market activity and volatility in the foreign exchange market (USD, EUR). Study highlights and analyse the preannouncement, contemporaneous and post announcement reactions of market after news announcement (scheduled and unscheduled). Findings suggest that scheduled news lead to preannouncement raise in volatility, but such volatility is insignificant in presence of unscheduled news. Volatility increase in preannouncement period because of speculative trades, informed trades, or because more traders close their position to avoid surprise, the adjustment of volatility goes on in contemporaneous period but changes in volatility is muted in post announcement period. Volatility of USD/EUR is returns are positively and significantly affected by market activity.Conrad and Lamla, studied the high-frequency response of the EUR-USD rate to ECB (European central Bank) Communication. Findings suggest that monetary policy has significant impact on future price development of EUR/USD exchange rates [10-15].

Ouadghiri and Uctum, examined the intraday effects of surprises from scheduled macroeconomic announcement and unscheduled events on six major exchange rate excess returns. It is found that surprises impact foreign exchange rates returns for about one third. It also validated the hypothesis that negative shocks have greater impact on volatility than positive shocks of same magnitude. Study found evidence that major foreign exchange markets are not efficient. Omrane and Savaser, established that economic conditions and investors sentiments have significant impact on currency returns behaviours but such relationship between microeconomic fundamentals and exchange rates doesn't hold in period of high risk. Omrane and Savaşer, while investigating the volatility reaction to macroeconomic news in major currency markets during global financial crisis, found that although the vitality response in larger to most news indicator in expansion but currency market reaction to Fed funds and home sales news is larger in crisis period. Jalil and Feridun, investigated exchange rates movements in Pakistani exchange market. Study found that foreign exchange trade associated variables such as NOPs, order flows, exposures, interventions and news are more important than macro fundamentals. Chan, Chhagan and Marsden conducted a study using wide-range set of influential scheduled macroeconomic announcements released from various emerging and developed markets to inspect the persistence and speed of news impacts on major Asia-Pacific currencies. Study found that responses to economic news were rapid in case of both domestic and economic news release from US. Study also found evidence of persistency with ref to US economic news and news concerning to China's purchasing manager Index. Around the time of news release there was a sudden increase in recognized volatility and trade volume of currencies. Chang, Gau and Hsu, proposed that price volatility and increased uncertainty in response to news release may encourage liquidity cohesion to fluctuate around the announcement. It is found that impact of positive news is stronger on FX liquidity commonality than negative news during financial crisis. Dominguez and Panthaki found significant effect of non-scheduled news and non-scheduled non fundamental news on both volatility and intraday exchange rate returns. Such impact is found higher in periods of higher than normal news arrival and higher market uncertainty. Evans and Lyons 2008, linked the impact of news in the FX market to order flows [16,17].

Evans and Speight, investigate the dynamic and short run response of Euro exchange rate returns to global macroeconomic announcement. US macroeconomic news created dramatic response in USD EUR returns and their volatility than macroeconomic news of any other country. Such reaction was very quick and occurs within five minutes after news release. Findings suggest that exchange rates are strongly linked to the fundamentals as reaction come within in 5 minutes. Lombardi, Siklos, and Amand, studied whether responsiveness of exchange rates to news exists in presence of zero lower bound (macroeconomic problem when short term interest rates are at or near to zero). Study found that reserve currencies (British pound and EUR), are more open to ZLB constraints, whereas currencies of small open economies were more responsive to foreign central bank announcement. Such unconventional announcement found significantly effective on exchange rates at ZLB. Ho, Shi and Zhang, identified that news sentiments have great impact on reducing the volatility persistent during low volatility regime (calm state) for all futures exchange rates and NFD. Such impact is high during high volatility period. Effect of negative news found higher than positive news sentiments. Marshall, Musayev and Tang, investigated impact of news announcement (scheduled news) on foreign exchange implied volatility (FXIV). Results show some of these announcements have impact on FXIV, which was important to market players for risk management and trading purposes. Study didn't find any significant change, pre and post announcement, in FXIV in response to news announcement. Impact of negative news was not much different from positive news. Stefan, Feuerriegel and Neumann, while measuring impact of news sentiments on overshooting of exchange rates found strong impact of news sentiments on fluctuations of exchange rates. Such effect account for up to almost 11% of forecasting error variance decomposition. Shocks in news sentiments lead to overshooting in exchange rates. Simpson, Ramchander and Chaudhry, identified foreign exchange rates respond to news sentiments related to interest rates, inflation and consumer demand but their response found muted to news regarding general strength of economy. Galati and Ho, provide evidence marked ignore good news but remain fixated on bad news but only for sometimes. Impact of macroeconomic news on USD/EUR rate found stronger when news switch from good to bad or vice versa. Ehrmann and Fratzsher, identified that economic news in US and in Europe drive daily exchange rate fluctuations of USD/EUR. Study found exchange rates show considerable reaction to news in period of high volatility and high uncertainty. Evans and Lyons, while investigating impact of macroeconomic news on exchange rates in terms of time period, found that impact of macroeconomic news can account for above 30% of daily price change. Simpson et al., identified that only 10 out of 23 episodic US macroeconomic announcements considerably affect daily GBP, DEM and YEN exchange rates [13,17-21].

From the above diagram and presented scholarly strand of literature review there was limited studies found where News Sentiments intricacy: Does News Sentiments Impact Forex Market had been studied in prospective of Pakistan therefore this paper is intended to fill the drought.

Research Methodology

Research is based on secondary data. Data is collected form one of the authentic financial data base, investing.com. Data is collected form year 1997 to 2018, containing five elections (scheduled news), one terrorist attack (Unscheduled news). Event window of 21 days, ten days before the event and ten days after the event, was created to check the impact of news on post event foreign exchange returns. The event study approach is selected, as one of the underlying assumptions behind event study is that, the market processes the information about event in an unbiased and efficient manner, Fama, Fisher, Jensen, 1971.Study used constant mean return model to calculate, AR (Abnormal Returns), AAR (Average abnormal returns), CAR (Cumulative Average Abnormal Returns), t-test is applied to check the impact of news on exchange rates. Research selected simple mean returns model as it yield often similar results to those of more sophisticated models, Warner, Brown (Figure 1) [22].

Results and Discussion

This section of the paper consort with the emprical results and discussion in deeper detail.

The above table contains the results for the event date considered for this study. Starting from 1997 election until the latest election i.e. 2018 all the results show insignificant results except the last two elections. In the last two elections the market showed significant result indicating impact of the election result on the foreign exchange market. The election results of 2013 show significant and negative impact of the election on the foreign exchange market. The results of 2018 have a significant and positive impact on the day of election on the foreign exchange market (Table 1).

The above table shows the impact of the terrorist attack on APS in 2014. The results have a negative and a significant impact on the foreign exchange market (Table 2).

The 1997 elections the elections impacted the foreign exchange market on two days i.e. three days before the election the t-test shows a significant and negative impact of election news on the market and then two days after the result date it also showed significant and negative impact hence indicating devaluation of rupee against dollar. Table explains the results of 2002 election. The T-test results show that the news did impact the foreign exchange market two days after the event date. On the 3rd and 4th day after the event the results show a positive impact of the news on the foreign exchange market, hence indicating that PKR was appreciated against USD. Post event also indicates a significant and positive impact of news on the foreign exchange market.

Table 1 contains the results for the election 2005. On the day of the election the results are insignificant, in the pre-event days the results show significant results eight days before the event date, whereas in the post-event of the window the results are significant and negative for consecutive ten days.It highlights the results of election of year 2013. The election of 2013 represents significant results except for one day i.e. on April, 30 [23-26].

Tables show the results of the impact of APS terrorist attack on the

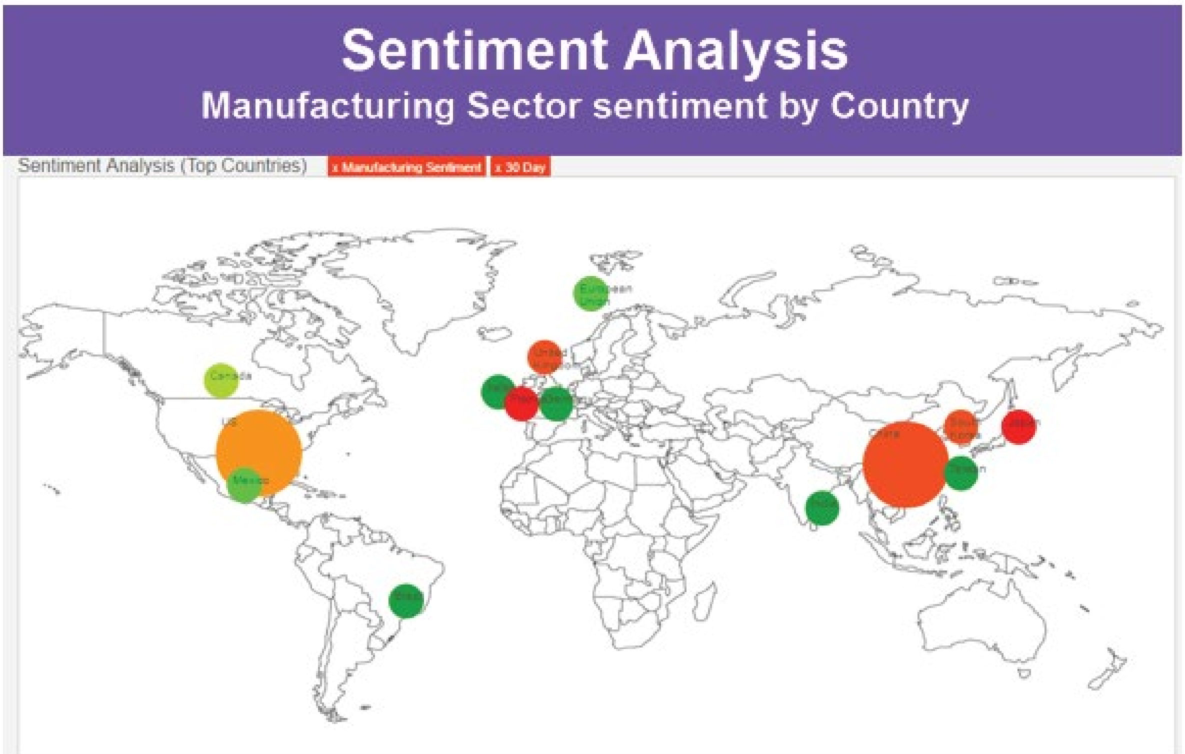

Figure 1. Sentiment Analysis.

Table 1. Election Results and exchange rate.

Years	Date of Elections	USA $ to PKR	bnormal Return	T. Test	Results	CAR	T.Test	Results
1997	3-Feb-97	40.08	0	-1.76E-05	INSIG	0	0	INSIG
2002	10-Oct-02	59.075	7.77E-05	0.806741	INSIG	8.50E-06	0.08824	INSIG
2008	18-Feb-08	63.26	0.000196	0.501351	INSIG	-0.00066	-1.68518	INSIG
2013	11-May-18	98.43	-0.00011	-1.50744	INSIG	-0.00189	-26.6159	SIG
2018	25-Jul-18	129.14	-0.00077	-2.61749	SIG	0.050429	170.8577	SIG

Table 2. APS Attack and Exchange Rate.

Years	Date of Elections	USA $ to PKR	b normal Return	T.Test	Results	CAR	T.Test	Results
2014 Dec 16	2014	100.5	0.001665	10.27974864	SIG	-0.00851	-52.5566	SIG

foreign exchange market. The T-Test applied on the cumulative abnormal returns shows significant results on the foreign exchange market. It shows that the negative impact of the news on the market as the value of rupee depreciated against the US dollar.

Tables shows the result of 2018 election. This year the results show the most significant results. In the post-event days the results are significant and positive for nine consecutive days whereas, in the post event date it shows significant results and continuing this trend until the tenth day.

Hence it can stated that from late nineties to early 2000, Pakistan foreign exchange markets were not open to news. Impact of news sentiments on foreign exchange returns found muted in late nineties.One of the explanation for these result could be, in late nineties Pakistani foreign exchange markets were not well developed, secondly investors were not well educated as they are today, electronic media was not as much active as today's media is so no significant impact of news on Foreign exchange returns were found. In early 2000, foreign exchange markets starts responding to news but such impact was not as much significant as it should be, but gradually in 2008 and then in 2013, significant effect of news announcement (Scheduled) was found on post announcement returns. In 2014, effect of news sentiment on FX returns found significant and this impact remain persistent on post event returns for a week, as it was unannounced news. In year, 2018 impact for election result announcement found highly significant and persist for weeks in post announcement period.

A deeper look on discussion

The current research is not new in this area of finance, many researches have been conducted on this relationship between news sentiments and foreign exchange returns. The objective of this study is to equip ourselves about the trend in Pakistan foreign exchange markets. This study made an attempt to study the impact of news sentiments on foreign exchange market with the intention to measure whether Pakistan foreign exchange markets respond to news or they are less responsive to news sentiments. The study tests the efficient market hypothesis of Fama, that the financial assets prices must fairly reflect all publicly available information. Secondly, researchers also attempted to test, Baker and Wurgler, proposed hypothesis that investor's sentiments (as optimism and pessimism about the stock) can be transmitted to financial markets; specifically the FX markets through investor's transaction and choices. Study found both of these hypotheses true in FX market of Pakistan. Impact of news sentiments found present on post announcement returns. But here this would not be wrong to conclude that Pakistani Foreign exchange market is getting responsive with passage of time. In late nineties no significant impact of news were found on foreign exchange returns but aschange in time such impact found significant. It can be concluded that news sentiment have impact on FX returns. FX rates changes in response to news, weather scheduled or unscheduled [26-28].

Summary and Conclusion

The purpose of this study was found that semi strong form of market efficiency exists in FX markets of Pakistan. It is also found that investor's sentiments can be transferred to FX markets through their transactions and choices. Pakistan foreign exchange market is responsive to news sentiments. This paper walk around the impact of news sentiments on foreign exchange market in context of Pakistan. To conduct the research, the selected currency pair is USD/PKR as it is the most traded currency pair in context of Pakistan. The research model is based on event study approach. Event window is created of 21 days, ten days before and 10 days after the event. Sample contains mix of scheduled and unscheduled news. Data is collected from the period of 1997 to 2018, containing five announced election results and one unscheduled news (terrorist attack). The objective of the study is to explore whether Pakistan's foreign exchange market is open to news or not and up to which extent Fama, efficient market hypothesis exist in FX market in context of Pakistan.Study found insignificant results in late nineties but with passageof time in early 2000, impact of news sentiments found significant on exchange rates. It depicts that Pakistan's foreign exchange market is moving toward efficiency with the passage of time. This study will be significant for academia, policy makers and investors.

Key findings and implications and significance

These findings will help investors, hedgers and financial institutions in making rational decisions regarding investment in the FX market. Current study only selected 6 elections results as scheduled news and one terrorist attack as unscheduled news; it was a short term analysis future study can be conducted by adding more events.

Directions/grounds for future research outlook

This study only taken USD/PKR as sample currency future study can be conducted by adding more currencies. The study leaves some grounds Future researches by adding maximum possible emerging countries to generalize the findings.

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