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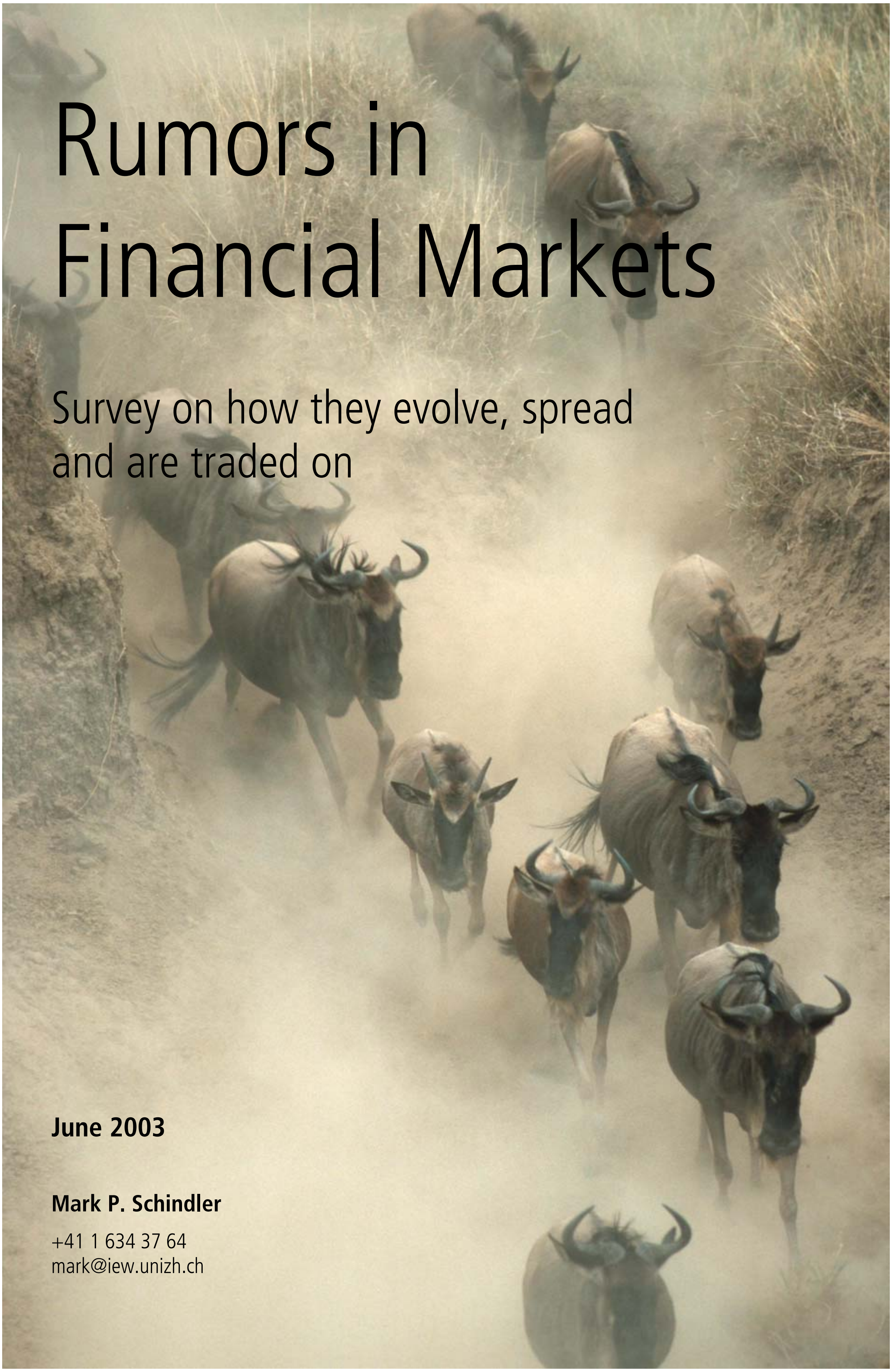

Rumors in Financial Markets

Survey on how they evolve, spread and are traded on

June 2003

Mark P. Schindler

+41 1 634 37 64
mark@iew.unizh.ch

Acknowledgement:

Financial support from the ESF Project on „Behavioral Models on Economics and Finance" on the behalf the Swiss National Science Foundation is gratefully appreciated. This research could not have been conducted without the generous help and support of Thorsten Hens and Thomas Bamert. Many thanks to all participants, in particular Philip Dodds from UBS. Special thanks to Martine Baumgartner, Mathias Bucher, Larissa Kihm, Joan & Hans Schindler, Ralph Villiger and all people providing valuable comments.

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Executive Summary

The rumor mystery

Rumors are the oldest mass medium in the world and their nature is still difficult to grasp. They are perceived as something mysterious, to create nervousness, excitement and to stir up peoples minds. They differ from information in that rumors are not confirmed immediately. Kapferer defines a rumor as *the emergence and spreading of information in a societal organism that either has not been yet publicly confirmed or been denied by official sources.*[1]

Financial markets as an ideal breeding for rumors

Financial markets are an ideal medium for rumors for several reasons: the number of participants is limited, the actors are all experts in the field and flooded with news, time is crucial, and a financial risk is always involved. It is argued in this research report that rumors are in no way mysterious but follow strong logical mechanisms which can be analyzed in detail. These analyses improve the understanding of rumors, why they evolve, what drives their spreading, why they are believed and what price implications are to be expected.

The truth about the strategic operating source

Rumors in financial markets, in general, evolve spontaneously. However, only half of the participants agree with this statement. The other half believe the illusion of a strategic operating source steering the market in the direction it wants. Rumors are typically transmitted orally, by e-mail or by media as information services or television. The question of source is always posed, though from a scientific point of view, it's not the most interesting one. There is clear evidence that non-traders are overconfident in knowing the source of a rumor. The first action of the participants after hearing a rumor is to approach other people for further verification of the received news, and to follow the price movement of the rumor. If the price moves then most likely there is some relevance to the rumor.

The belief determines the spreading

Rumors are spread because they are believed in! If the market participants contact other people in the market they are already biased towards the rumor and consider it important. They are looking for confirmation of their opinion.

All of a sudden it's here

A typical statement of a trader is, "All of a sudden a rumor is around, and everyone knows about it." According to 70% of the traders a rumor is spread within minutes, and thus in no time the entire trader community knows it.

The price movement shows the market belief

People want to believe in rumors, and most participants confirm this. The determining factors of believing the rumor are the source, i.e. people, media etc. one hears the rumor from, and the price movement of the rumor. It has to be noticed that 20% of the participants say that they don't care if the rumor is going to be true. The answer to the question whether the market as a whole believes the rumor is crystal clear. Close to 85% of the participants state that from the price movement they conclude if the market believes the rumor or not. The question therefore arises, does it really matter what an individual believes or is it more important to assess the average belief expressed in the market price movement?

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[1] Jean-Noël Kapferer, Gerüchte, 1995, p. 25, own translation.

Information networks as an essential tool

Information networks are essential for the assessment of the participants views. In essence, people want to have their views confirmed. In comparison to non-traders, traders in general spread rumors to priority people hoping for mutual action. One interviewed trader mentioned, "Information networks are one of the most important features when dealing with rumors." The information advantage of information networks can last for seconds or at the most minutes.

Making systematic profits on rumors is highly unlikely

Of course everyone wants to know, is it possible to make systematic profits on rumors? It is argued in this report that this is very unlikely if not impossible. The price patterns of rumors are highly comparable to those of information. A third of the participants state that no systematic price patterns evolve. Another third state that the price moves with swings to the new anticipated price. However, the pattern of these swings is almost unpredictable. But the mystery still survives that the creator of the rumor has a good chance to make systematic profits. When it comes to actions after the price has moved, traders show clear signs of herding behavior. Approximately 70% of the traders at least consider trading after the price has moved. This herding behavior leads to short-term momentum, excess volatility and long-term reversal. Such behavior leads to trends, trends that can be one's friend if anticipated properly. It is easy to discover a trend, but is it worthwhile riding it? How does one know its magnitude and its turning point? These questions arising from rumors are absolutely identical to those arising from any event or piece of news and must be tackled on an ongoing basis.

Purpose of this initiative

The mystique of rumors in financial markets

The science behind the myth

Rumors are perceived as something mysterious, almost magical. A rumor frequently produces a hypnotic effect. It fascinates, overwhelms, entraps and stirs people up. Rumors are the oldest mass medium in the world and their nature is still difficult to grasp. What is so special about rumors, why do people get so excited, anxious and nervous? Why do companies release press bulletins saying, "We don't comment on rumors?" Rumors are in no case mysterious or irrational but follow mechanisms that can be analyzed. The analysis of these mechanisms is one of the goals of this report.

Interestingly enough rumors in financial markets have not yet been studied extensively from a scientific point of view. The *Theory of Finance* has achieved many insights into information processing but it has failed completely to deal with rumors. As the great speculator André Kostolany put it, "A trader may, when it comes to rumors on stock exchanges, not even trust his own father."[2]

Rumors vs. information

In the scientific community there exist several different definitions of a rumor. Regardless of the definition, rumors in financial markets differs from information in that they are

a) not verified
b) of time limited importance and a limited number of people
c) meant to be believed

a): A rumor can either be confirmed as true or false at a certain point in time. Information is always confirmed immediately while rumors may or may not be confirmed sometime in the future.

b): The time limited importance of the rumor and the number of people affected, refers to its "public." The "public" of the rumor are those confronted with it. Rumors pertain to topics of consequence. The survey of other peoples opinion serves as decision support for the preparation of further actions.

c): Rumors are statements intended for belief, they might be true or false. One should possibly act upon them, depending on what the market believes. In that sense they don't differ from verified information. Because rumors are primarily for belief, this characteristic distinguishes them from other informal information like gossip, folklore or legends.

[2] André Kostolany: Kostolany's beste Tipps für Geldanleger, 1998, p. 269, own translation.

Structuring terminology of news, information and rumor

Throughout this report the terminology, news, information and rumor are structured as follows:

News	
Information	**Rumor**

News includes any kind of message, whether it is verified or not. Information is by definition verified, meaning the content of it is certainly true. A rumor is a piece of news, but only confirmed as true or false at a future point in time. An unverified piece of news that has not yet entered the stage of a rumor is called a communicated thought.

Remark: Literature is limited on the subject of rumors, especially in financial markets. The book, Rumors, 1990, by Jean-Noël Kapferer is respected in the field and often quoted in this report.

The survey and its intention

A better understanding of the phenomena rumor

The objective of this survey is to grasp how rumors evolve, spread and are traded on in financial markets. The results of this study will lead to corresponding experiments at our institute and may provide insights into the systematic behavior of traders. It is our goal to provide professionals in the business with a better understanding of the phenomena, rumors, and to provide them with more efficient means of dealing with them.

Context of rumors in financial markets

Financial markets as a fruitful ground for rumors

When traders don't have any news they start to invent some

Financial markets have always had a flair for rumors, because on the trading floor all action is based on news. Knowing more than other market participants can lead to money profits. As one trader mentioned, "The traders jungle drums are amongst the most sensitive in the world."[3] They may gamble if they believe the rumor reflects the truth, but even if it's not the case it can lead to financial consequences. Rumors in financial markets are seen as a substitute for news. News in financial markets is absolutely critical. Therefore in the absence of news something is simply invented. In a tense, stressful working atmosphere, all traders operate with high-powered antennas. The fear that other people may know something they don't know leads to stress and anxiety. In these situations the traders need confirmation of their views and positions. Gaps in information are often filled with speculative thoughts. The communication of speculative thoughts is a classical form of rumor evolvement. Rumors can only evolve when the content is interesting and relevant. Merger or take over talks are an example of an event in favor of rumor evolvement. Statements such as, "We are always interested in reasonable and beneficial acquisitions" or, "We decline to comment on that issue" opens the door to rumors and fantasies.

Are rumors in financial markets different from other rumors?

Are rumors in financial markets different from other rumors? No, but there are factors that make financial markets especially sensitive to rumors:[4]

- The number of participants is limited. The size of the potential public of a rumor is limited and the traders have an efficient communication network.
- The traders are experts in their field and have a high credibility. They know the market well and are specialized in certain financial products or instruments. Traders don't believe all the news they receive.
- Time is crucial. Traders are under constant time pressure. The tense and nervous atmosphere is an excellent breading ground for the spread of rumors. Traders don't have time to verify the news or to assess its accuracy. They have to decide what to do despite the uncertainty involved. The necessity of fast decisions keeps the hunger for new news (and so for rumors) alive.

[3] Fredrick Koenig, Rumor in the marketplace, 1985, p.154.
[4] Cp. Jean-Noël Kapferer, Gerüchte, 1995, p. 253-255.

- In comparison to other rumors, those in financial markets always involve a financial risk. A trader could be wrong in assessing the market's belief. If he doesn't trade he risks missing a profit if the rumor should be proven true. The effect of a rumor is correlated to the risk attitude of the trader. In general the trader is not concerned about the source of the rumor. He doesn't have the time to think about it. The rumor is there, that's enough for him. As to be seen in this report, many traders don't even care if the rumor is going to be true (see section "Belief of rumors").

- Financial markets are a place where decision makers are flooded with news. It is well known that rumors evolve in absence of news. The same holds for news overflow. What news is believed when one receives too much? One is likely to work with the most secure news received and relies on factors supporting one's own views.

Six types of rumors

Classification of rumors according to source and type of emergence

The apparent variety of rumors can easily be reduced when rumors are classified according to source and type of emergence. An analysis regarding these two factors leads to six types of rumors:

Table 1: Six types of rumors:[5]

		Source of the rumor		
		From an event	From a detail	Pure fantasy
Type of emergence	Spontaneous	1	3	5
	Deliberately provoked	2	4	6

1) Whenever the public hasn't received quick and satisfying answers to open questions it forms its personal and collective view of the circumstances leading to a rumor. The process of emergence is spontaneous and evolutionary. The public creates and chooses those hypotheses that generate the highest satisfaction and the highest subjective probability of being true.

2) In comparison to 1) the hypotheses are deliberately provoked to profit from a certain event.

   Example - the recent rumor of the merger of two airlines, Swiss and Lufthansa. In a newspaper interview, the Swiss CEO failed to give satisfying answers concerning the future direction of Swiss. His statement, "*If airlines wanted to be profitable, the inevitable solution is to merge and use synergies among the different parties,*"[6] provoked rumors concerning a merger with Lufthansa.

3) In this type, a hardly noticed detail or signal triggers the rumor. For such a signal to be perceived, a small group of people must pay special attention to that detail. It reacts instantaneously and in an extremely sensitive manner.

   Example - There exist several fundamental religious communities that strongly believe in the "incarnation of the devil." They search for every possible sign supporting their view. Procter & Gamble was a "victim" in the mid 1980's of a rumor that the hidden numbers of satan could be found in their logo.

[5] Compare Jean-Noël Kapferer, Rumors, 1990, p. 37.
[6] Vgl. Schweizer Touristik, May 16, 2003, own translation.

4) As in case 3) it's possible that certain interpretations of a detail are spread deliberately.

5) The fifth type of rumor is characterized by the fact that it has an uncertain point of origin. In its analysis, no fact, symptom, sign or detail can be found. It is a product of fantasy. Typically, such rumors are known to create emotions of fear, feelings of health or happiness, and spiritual experiences.

   Example - The rumor of the appearance of a Virgin Saint managed to let more than 100'000 people flock to a place in Puerto Rico in 1953. She was supposed to bring health and heal diseases to all witnesses.[7]

6) In comparison to case 4) fantasy rumors are more likely to be deliberately provoked.

Spontaneous rumors originating from an event or a detail may be assumed to form the majority of rumors in financial markets. In general fantasy rumors are not believed in the market and therefore not very realistic. It's possible that some rumors are deliberately provoked (see graph 4 on page 17).

[7] Compare Tamotsu Shibutani, Improvised News, 1966, p. 114.

Classification of rumors in financial markets

The six different types of rumors as stated previously apply for any kind of rumor. Rumors in financial markets can further be classified into two dimensions and four categories:

Table 2: Categories of rumors in financial markets:[8]

		Domain of the rumor	
		Public	*Market*
Type of emergence	*General*	1	3
	Specific	2	4

1) Example – Saddam Hussein will go into exile. The rumor Saddam Hussein might go into exile is a *general* rumor and related to the *public*.

2) Example – OPEC agrees on raising oil production. This rumor is one concerning the *public,* since the general population notices the price change immediately at the gas station. At the same time the rumor concerns a *specific* industry.

3) Example - Financial institutions may face additional regulatory requirements. Such a rumor is relevant to the financial community, thus it's a *market* rumor and of *general* interest.

4) Example - Novartis is in merger talks with Roche. Rumors with regards to merger talks between Novartis and Roche are a *market* rumor concerning one *specific* industry.

[8] Cp. Fredrick Koenig, Rumor in the marketplace, 1985, p. 153.

Participant profile

Survey parameters

Over 200 professionals surveyed

To assess the professional's current practice towards rumors in financial markets over 200 professionals in the field were surveyed in the spring of 2003. Two methods were used to access both quantitative and qualitative data - online survey and personal interviews. The online survey was sent by e-mail to professional traders and sales people dealing with all asset classes (stock, bonds, FX and commodities) and financial instruments including derivatives. Personal interviews were held with selected traders and sales people. All participants were asked questions on the following topics:

- **Evolvement of rumors:** How do rumors evolve and what is their origin?
- **Spread of rumors:** Why do rumors spread and how long does it take for the entire trader community to know them?
- **Belief of rumors:** How do you determine if the market believes the rumor? How does that correspond with your own judgement? Do you actually know the probability of the rumor being true and do you care?
- **Network formation:** When rumors spread, do information networks evolve? How important are these networks for you to stay on top of the news flow?
- **Trading on rumors:** Do systematic price patterns evolve and if so, how can you profit from them?
- **Rumors vs. information:** In financial markets, what is the difference between rumors and information? Do you trade differently on rumors than on information, and if so, why?

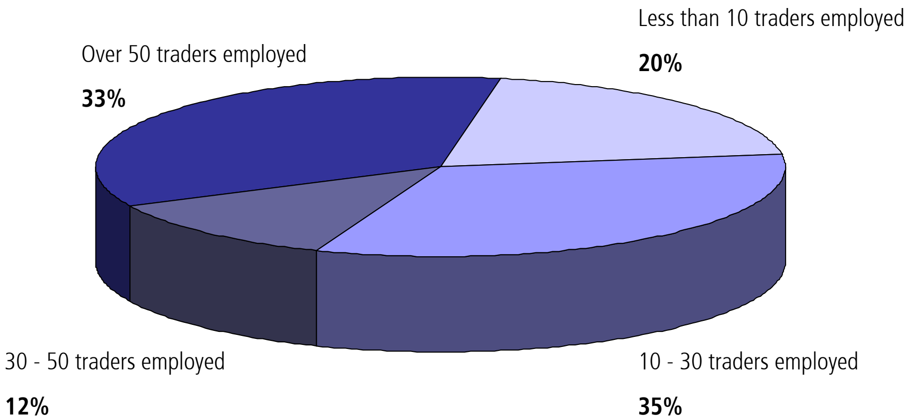
In addition, those participants interviewed were asked their perception and views on rumors. Did they see any trends lately when dealing with rumors? The qualitative data is incorporated throughout this report. For reasons of confidentiality individuals or institutions they represent are not disclosed. Moreover, it must be stressed that the quantitative data of this report are "indicative" rather than "representative."

Survey participants

The online survey was sent to over 200 professionals in regional, private, and investment banks. In addition, several interviews were held with selected traders and sales people who are confronted with rumors in financial markets on a frequent basis. 141 answers were received. This represents an answer rate of almost 70%. 91% of these were male, reflecting the current status in the business. Participants in the study included professionals from institutions of all sizes.

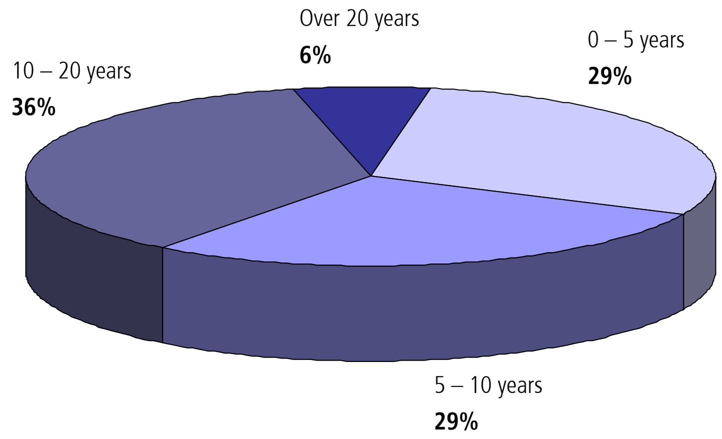
A wide range of institutions are covered in the survey

Graph 1: Number of traders employed at your branch



Considerable amount of experience of the participants in the business

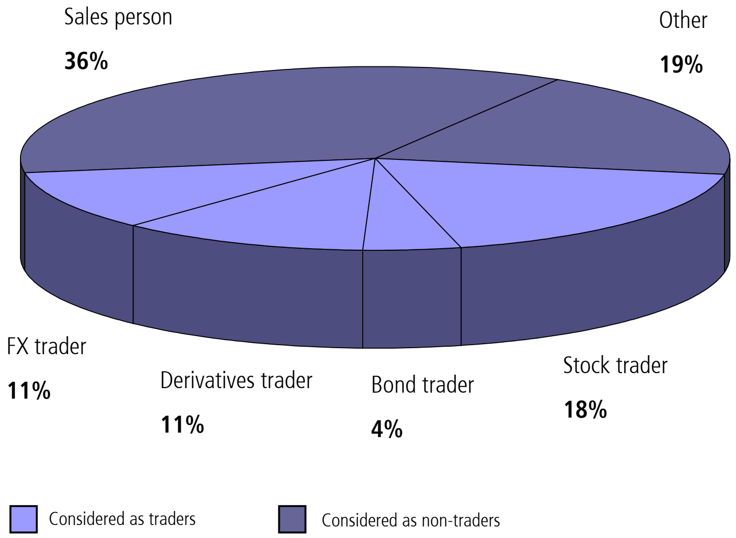
Graph 2: Years of working experience in the profession



Most participants are traders or sales people

Most of the participants work in their profession either as traders or sales people. The distinction between traders and non-traders is important for the analysis of further results.

Graph 3: What is your profession?



Remark: Among the many “other” professions are investment advisors, portfolio managers and strategists.

Evolvement of rumors

How rumors start and why

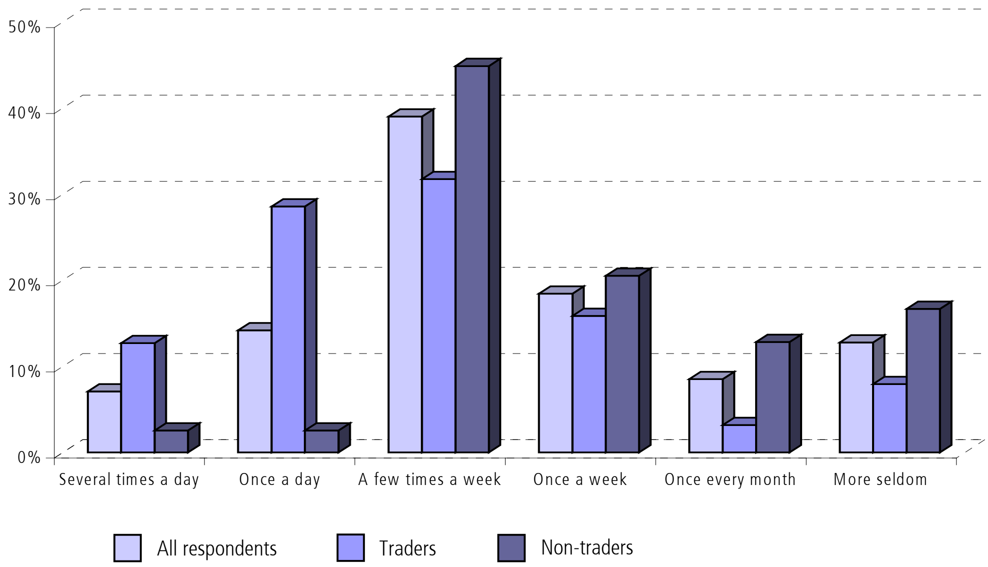
Is there a reason why a rumor evolves?

The public is usually very keen to determine the source of a rumor and why it evolves. Paradoxically this is not the most interesting question from a scientific point of view. Since the myth still persists that a rumor is usually evoked on purpose, the search for the source takes high priority. A rumor is in most cases a spontaneous social product following no purpose or strategy. The myth, of a hidden and strategic operating source of a rumor is comfortable and useful at the same time. It's comfortable because as soon as any insignificant rumor evolves, a fantasy world of conspiracy, manipulation, disinformation or economic battle can be imagined. The rumor is then a "crime" committed by a third party. It's a perfect "crime" since it is committed without any tracks, weapons or proofs. On the other hand the myth of the source is cultivated because it's useful. In time of war the idea of an enemy hidden in the walls as the creator and source of evil rumors has been used to repress the emergence of rumors of all kind. Now what do the participants believe?

Graph 4: Answer to the question: Why does a rumor evolve? (several answers possible)

Some participants follow the mystery path (one can make money on it) and others follow the spontaneous path (there is no reason, it just happens). The answer of all respondents "because it's in their interest" received the highest percentage. An astonishingly high number of participants marked "because one can make money on it." If that was true, everyone would create and spread as many rumors as possible to make money. This is definitely not what is observed in the market.

Graph 5: Frequency of hearing a rumor of professional relevance



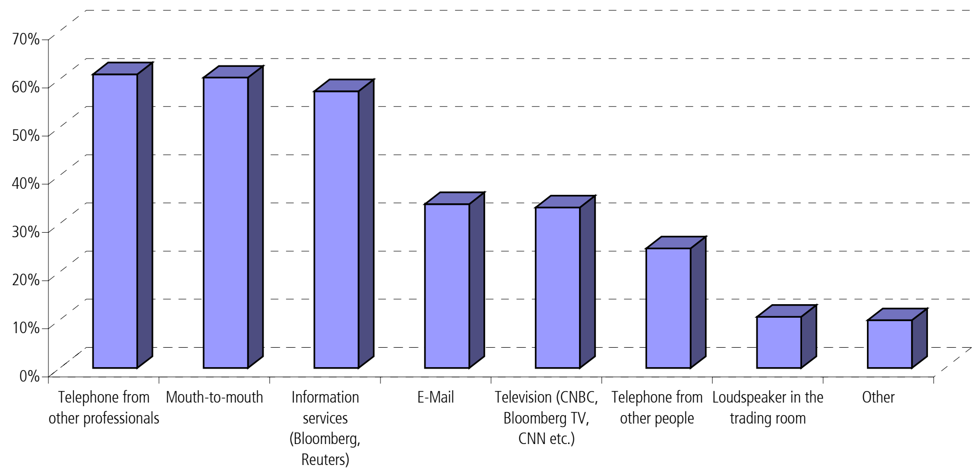
On average the participants hear rumors of professional relevance "a few times a week"

Traders as well as non-traders on average receive rumors of professional relevance "a few times a week". It is logical that traders receive on average rumors more often than others. To systematically make money, the frequency of rumors would have to be much higher. There is a contradiction to the argument of systematically making money. Traders recognize the contradiction themselves and state, "there is no reason, it just happens." This answer from traders received the highest percentage and is clearly higher than that of non-traders (48% vs. 32%, see graph 4 on page 17).

Inspite of this, many traders believe there is a magic force behind a rumor leading to systematic profits. This is amazing. Interestingly enough six traders marked "because one can make money on it" as well as "there is no reason, it just happens." Their beliefs are contradictory. Although they believe rumors evolve spontaneously, they also believe that there is something mysterious about them and that money can be made.

When people hear rumors in financial markets, how do they receive them?

Graph 6: Means of communicating rumors (several answers possible)



The source of a rumor remains unnamed

Oral communication and information services are the most common form of receiving rumors. The bar chart shows the answer of all respondents only because it is essentially independent of the participant's profession. Typically one receives a phone call from another professional saying something like, "I have heard from another fellow that company XY may release a profit warning." Or, the Bloomberg news ticker reports, "According to industry sources company ABC may have to raise new equity capital." Characteristic of such rumors is the fact that the source is never explicitly named. To enhance credibility to the rumor the term "well informed" is frequently added.

Correlation between market volatility and frequency of rumors

More rumors in volatile markets

It is often claimed that in volatile markets the market participants are confronted with more uncertain news such as rumors. Possibly the volatile price movements themselves trigger speculation and rumor evolvement in the market. The participants answer the question, "do you hear more rumors in volatile markets?" as follows:

Graph 7: Frequency of rumors and market volatility

What stands out is that the participants hear definitely more rumors in volatile markets. Thus the intuitive response of most people, "I hear more rumors in volatile markets," seems to be true. This leads to another question, namely, is the volatility the cause and the rumor the effect or vice versa? One opinion is that rumors are the trigger for volatile markets while others would argue that volatile markets are the cause for the evolvement of rumors. The answer to this question is clear-cut only in very few cases and is to a large part a matter of perception.

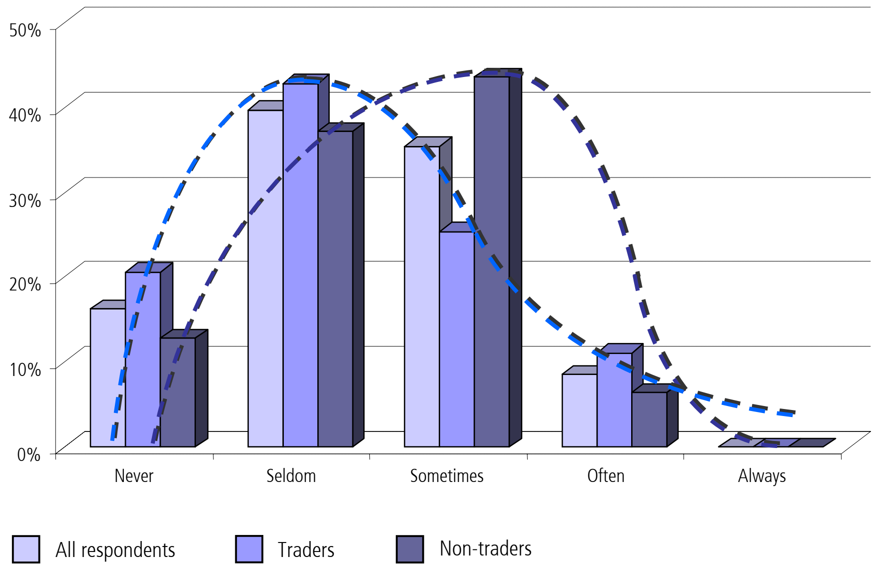
What is the source?

It's not the source but what the public makes of it

The search for the hidden, strategic operating source survives persistently allowing the public to justify believing a "false" rumor. To blame the source, not admitting oneself was wrong, is comfortable. It is easy to innocently say, "I was deceived." Not without reason the public shifts the responsibility to the source (only the source can be the betrayer since it deceived the public). In this way it can avoid its true responsibility. There is a steady flow of innumerable potential sources that send innumerable signals and messages not causing any effect. Now and then a signal or message initiates the development of a rumor. At a certain point in time the public raises the importance of the signal or message. The question of source is basically of little significance. During the process of emergence the acceptance and the mobilization of the public are more important aspects than the source. It's not the source, but the public listening and talking about it, that determines the development of the rumor. *So what really creates the mystique, nervousness and passionate interest is not the source but what the public makes of it.*

Overconfidence among non-traders?

Graph 8: Frequency of knowing the source of the rumor



It is to be noticed here that the distributions drawn simply outline the true distribution and are only meant for illustration purposes to compare the adjustment of the maxima to each other.

Since the public is very interested in the source of the rumor, participants were asked, "how often do you know the source of the rumor?" The results are intriguing. There is a clear distinction between the distribution of answers of traders and non-traders. In addition, non-traders claim more often than traders that they know the source of the rumor.

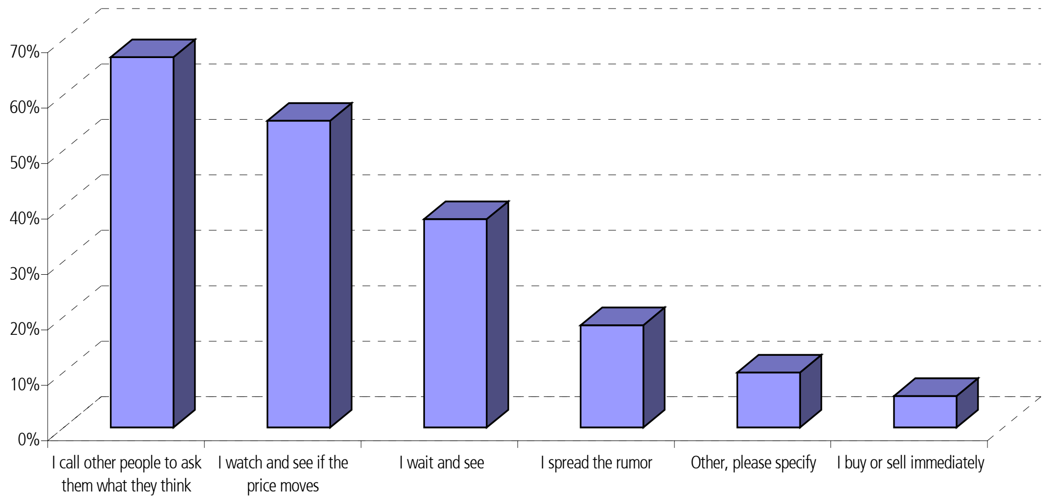
This is surprising. Traders are closer to the market and should know the source more often than non-traders. One may conclude that non-traders overstate their belief in knowing the source of the rumor, which is a sign of overconfidence. This basically doesn't matter since the source itself is not a relevant feature. Nevertheless, it's interesting to note that the source of rumors is assessed quite differently among the various professionals.

First actions on a rumor

The price movement determines further actions

What do people do first when they hear a rumor? (see graph 9) Over 50% of all respondents state that "they watch and see if the price moves." The price movement is the leading indicator of the market regarding the rumor as significant. The answer "asking and calling other people" is highly favored and stated by over 66% of all respondents. One has to keep in mind that traders desperately seek views supporting their own. On the other hand only a small minority (18%) admits that they spread the rumor. Where exactly is the difference between spreading a rumor and calling or asking other people what they think of it? Certainly that is a form of spreading the rumor as well. It is likely that many people fear admitting they spread rumors because there might be something objectionable to it.

Graph 9: First actions on a rumor (several answers possible)

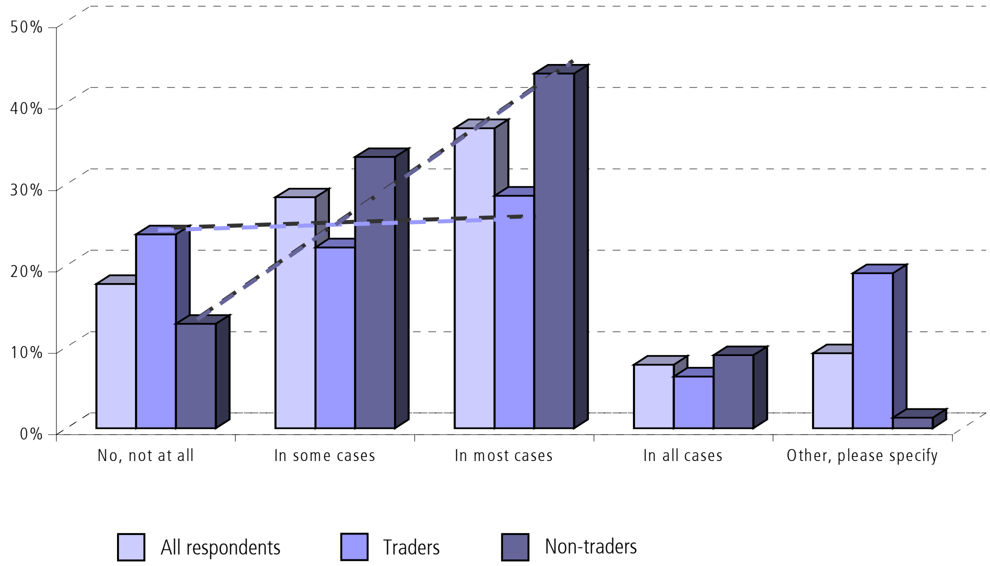


Action on specific vs. general rumors

Specific rumors don't necessarily lead to more sensitive reactions

This section analyses the reaction of the market to specific versus general types of rumors. The classification of *general* vs. *specific* rumors follows the same definition as in the section "the classification of rumors in financial markets" (see page 13).

Graph 10: Answer to the question: Is the market reaction more sensitive to *specific* than to *general* rumors?



The answers to this question provide interesting results. While non-traders in general react often in a more sensitive way to specific rumors the same doesn't hold for traders. The frequency of the first three possible answers "no, not at all", "in some cases" and "in most cases" of traders is almost equal. Furthermore, many traders responded with "other, please specify." These traders don't consider the classification of *specific* versus *general* as a differentiating factor. They rather focus on, "Depends on the potential impact" of the rumor. That supports the view that traders are only interested in the price impact of the rumor and nothing else.

Spread of rumors

Why rumors are spread

Spreading a rumor is first of all a human behavior

The spreading of a rumor is first of all a human behavior. A rumor can only develop when people talk about it. Why are certain stories retold and others not? What is the essence of news that makes them worth being talked about?

In the media these questions are an everyday issue. For the media, news is good news when people start talking about it. Some communicated thoughts have the potential of becoming a rumor, but only if the content is of such value, that it will lead to widespread discussions.

Table 3: Conditions necessary for spontaneous news passing[9]

	Medium through which the rumor is passed	
	Media	*Word of mouth*
Conditions	1. The message has to have "news" (relevance, significance) status 2. The news is not simply repeated but interpreted to influence the public's opinion	1. The news has to be expected in some form, such that it will awaken semi-conscious hopes, fears or forebodings 2. The news has to be unforeseen and to have immediate, significant consequences for the recipient

If these conditions are fulfilled, it is likely that the news will start a retelling and discussion process that people call a rumor.

[9] Following Kapferer, Rumors, 1990, p. 43.

Why do people talk to each other?

According to Kapferer[10] five different reasons exist why people talk about rumors:

1. Speak in order to know

Upon hearing a rumor people develop a certain opinion. In financial markets in particular, they want their views confirmed. For this reason they speak to other market participants to form a consensus by contributing details, adding elements and personal hypotheses. They are actively involved in the formation of the consensus towards the rumor. People having different views isolate themselves and choose another reference group. In financial markets however, this kind of behavior could be costly. The consequence is a constant pressure to adapt to the mainstream opinion. This is the dilemma of traders: They want to perform better than the average market participant, but they don't want to expose themselves.

2. Speak in order to convince

For certain people, transmitting rumors is like starting a crusade or spreading the word of God. They identify themselves with their content which they look at as the revealed truth. The identification between the prophet and his message is so strong, that any rejection or doubt is regarded as the rejection of the person itself. These people find satisfaction when other people believe them.

3. Speak in order to free oneself

For some people the rumor is the first stage of a psychic relief. Speaking about the rumor is then the first step towards reducing anxiety. Because the rumor originates from an unknown source, it is socially an acceptable form of reacting to one's repressed aggressions.

4. Speak in order to please

Many rumors are spread simply because people enjoy talking about them to try to impress other people. This form of talk is very similar to telling jokes. People tell jokes to consume them and enjoy the pleasure they provide. Talking about a rumor demonstrates that you have good connections to well-informed sources. You belong to the inner circle receiving the newest and hottest news.

5. Talk for talk's sake

People like to talk. Not having anything to say is a confession intellectually that you don't have anything to offer. A rumor can fill this gap effectively. With a rumor you can say something entertaining. People like to talk of others rather than themselves. They find a detail or an unimportant event, embellish it and from this a rumor may start. At the same time the rumor is an invitation to talk. It's an invitation not only to small-talk but to state a personal opinion, a moral comment or to show emotions. The rumor therefore not only leads to the exchange of news but also to the expression of opinions.

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[10] Compare. Kapferer, Rumors, 1990, p. 44 – 49.

In financial markets one "speaks in order to know"

In financial markets rumors are communicated through the media as well as from mouth-to-mouth (compare graph 6). In most cases people *"speak in order to know"* and "*speak in order to convince*." They compare and adjust their own view to the view of the others.

The media and the rumor

The influence of the media spreading a rumor

The speed at which a rumor spreads today, is linked to the attitude of the media. In ancient times rumors spread with different means and velocity. Today's media have a wide range of possibilities and a tremendous influence on and freedom of how to treat rumors.

They can go as far as creating and launching new rumors, or in contrast to start a campaign against an existing rumor. The publication of a rumor in a media like the internet can spread explosively over the entire globe. While in the past the spread was geographically limited, today's modern technology allows everyone to know almost instantaneously.

In order to avoid legal risks, journalists can publish unverified news as rumors. They use the tactics of saying, "We simply express objectively a piece of news that others (of course unknown sources) have said." Using hints, allusions, rhetoric questions and ambiguity allows the sale of news without legal risk.

The medium is the message

Though some rumors may be produced by the media, the media act as a high-performance communication means. A rumor communicated by the media is at the same time accelerated and authenticated. The authentication is a psychological effect. The medium becomes the message and in so doing achieves overwhelming credibility. Another action of the media is to twist news in such a way that rumors are likely to be born. Rumors are encouraged when the media raise hypotheses which the public could have thought of itself. Media can counteract or criticize rumors as well. Such action is frequently found in political editorials.

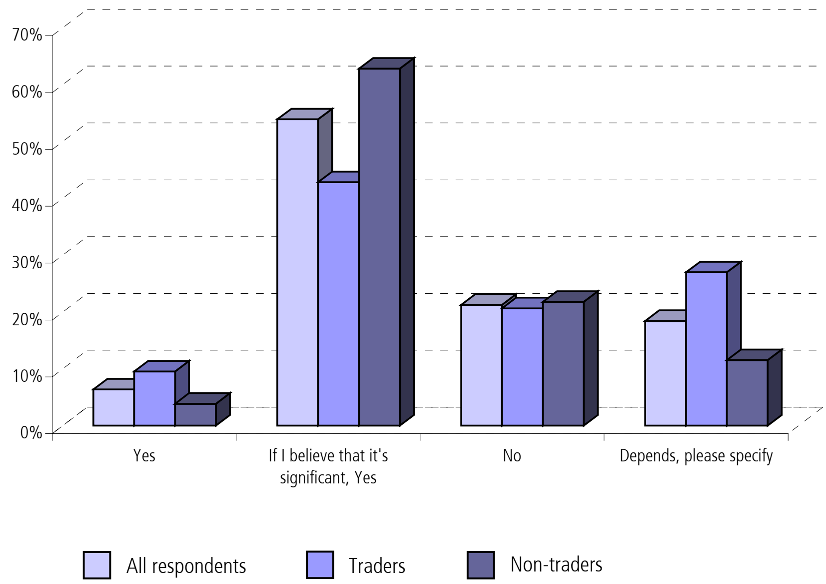
Example – During the Iraq war in 2003 the U.S. media participated very actively in the distribution of rumors claiming the possible death of Saddam Hussein. The purpose was to demoralize the Iraqi commanders, making them question a worthwhile fight for a dead leader.

To spread or not to spread?

Over 50% of all respondents spread a rumor when they believe that it is significant

The participants were asked if they spread a rumor and if yes, why or under what circumstances. This is what they answered:

Graph 11: Answer to the question: Are rumors spread when they are heard



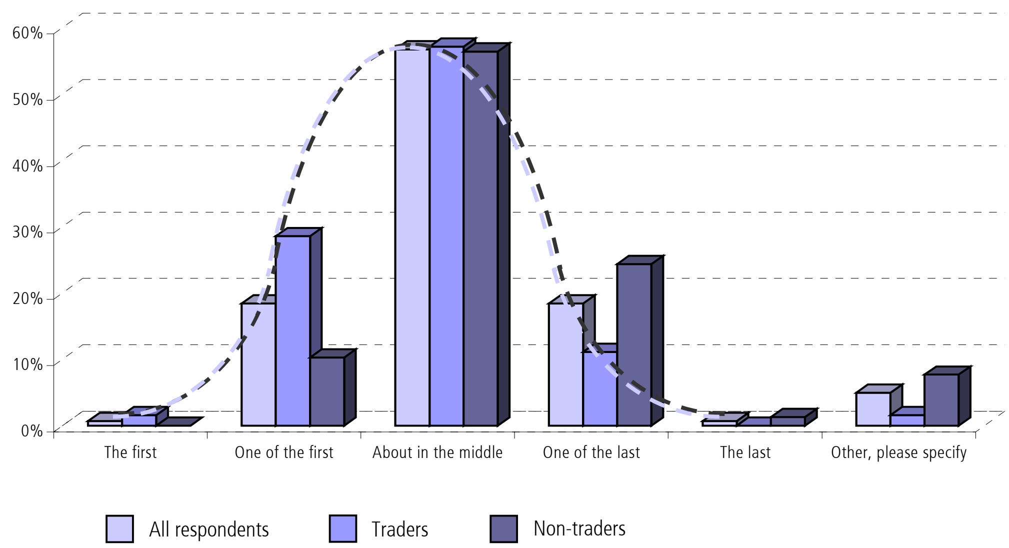
On average over 60% of the participants admit that they either spread the rumor in any case or at least when they believe that it is significant. Independent of profession a percentage of about 20% doesn't spread the rumor in any case. Among the "depends" answers there were many statements like, "Only if I can verify it to a reasonable degree or when I need help verifying it" or, "I only tell the rumors in-house." It is reasonable to assume that most market participants spread the rumor in some form. However, they restrict themselves either to a significant rumor or to a limited audience so as not to be heavily exposed.

First or last in the row?

Participants on average think they are "about in the middle" when hearing a rumor

It's extremely important for participants in financial markets to be on top of the news flow. If they receive relevant information ahead of other participants, they have a good chance of turning this head start into real money profits. Regarding rumors, this conclusion is not necessarily valid. The individual can't be sure of how the market will react to the rumor. Nevertheless if one is on top of the news flow, one is able to participate in and influence the development process of the rumor. The first ones to hear the rumor therefore have a better chance to anticipate the market reaction to the rumor. How do the participants rank themselves in the order of hearing a rumor in the financial market? Are they overconfident in believing to always be on top of the news flow? Graph 12 answers these questions.

Graph 12: Answer to the question: Are you thought of being one of the first or last to hear a rumor?



The results provide interesting insights into the self-estimation of the participants. The answers of all respondents are astonishingly symmetrically distributed around the mean "about in the middle." Therefore it can't be presumed in general that they overestimate their ranking in the order of hearing a rumor. However, as the results are split between traders and non-traders they look a bit different.

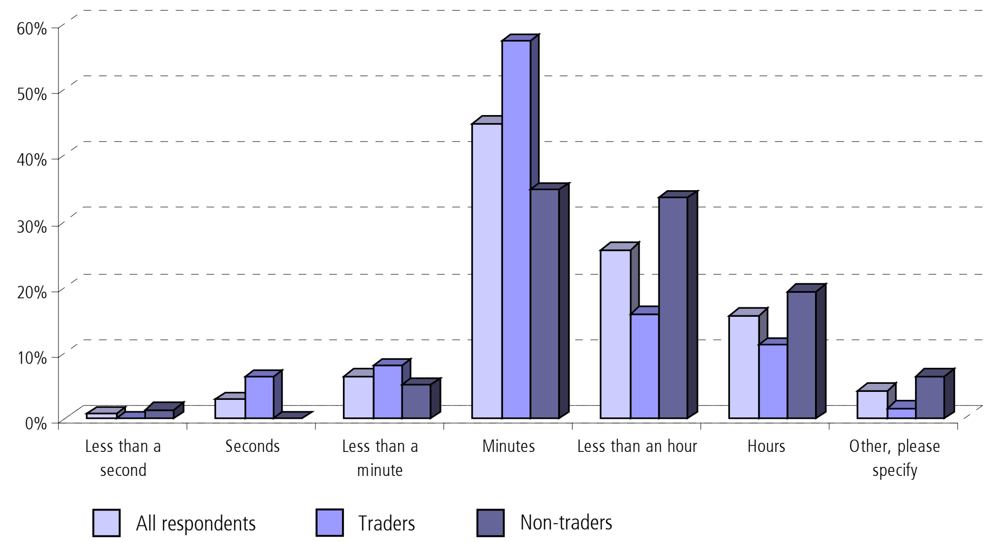
"If as a trader you're not one of the first, you're simply a looser"

A far higher percentage of traders (28%), in comparison to 10% of non-traders, believe that they are "one of the first" to hear a rumor. Only 11% of traders, in comparison to 24% of non-traders, say that they are "one of the last." This leads to the possibility of a certain degree of self-overestimation among traders. An alternative explanation is that traders are actually "one of the first" and non-traders "one of the last," which indeed could be true. While one interviewed sales person mentioned, "I always have the feeling as if I'm one of the last," another trader claimed, "If as a trader you're not one of the first, you're simply a looser." One respondent actually claimed he was "the first." The interpretation of this statement is left up to you.

An important question with regard to being "one of the first" or "one of the last" is how long does it take for the rumor to be known by the entire trader community? A considerable length of time for a rumor to reach the whole trading community leads to information asymmetries among the market participants. If however the rumor is spread to all participants at high speed this won't lead to information asymmetries, but simply to information processing asymmetries. All the participants receive the information at the same time but they simply process it in a different way. This statement holds however for any kind of news, if it's a confirmed piece of information or "just" a rumor.

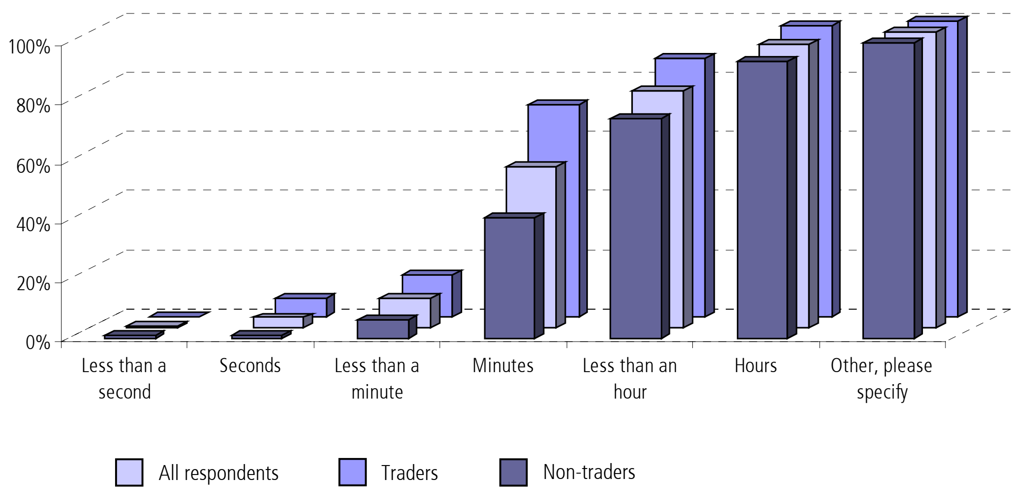
Spreading time: How long it takes

Graph 13: Answer to the question: How long does it take for the entire trader community to know about a rumor?



According to 70% of the traders the community knows of the rumor within minutes

Graph 14: Cumulative distribution of graph 13



"All of sudden there is a rumor around and everyone knows about it"

Over 70% of traders state that within minutes the rumor is known within the entire trader community, while only 41% of non-traders state the same. The analysis of the answers lead to the conclusion that traders are closer to the market than non-traders. Secondly, rumors appear to spread at high-speed through the trading community. This is fully in line with a statement from an interviewer that, "All of a sudden there is rumor around and everyone knows about it. I don't know exactly where it came from, but that doesn't matter really."

It is easy to understand that rumors spread very quickly in financial markets. Time is crucial. The results from this question are in consistence with the statement that many participants receive the rumors from the media like information services or television. Since everyone follows the same television stations and has the same information service providers, they all receive the rumor at the same time. This is probably not the case for all evolving rumors but certainly for a good part of them. If it only takes minutes or less to let a rumor spread within the entire community, this implies rumors don't create any information asymmetries among the participants. As with verified information only information processing asymmetries are caused by the rumor. However, these different interpretations have to be adjusted depending on the market's belief and the traded price of the asset. The following section shows the exact relationship between the belief of the rumor and its traded price.

Belief of rumors

Why rumors are believed

Who has not been surprised by a rumor completely believed in, that turned out to be nonsense and false? The result is astonishment. How could one have been so wrong and how could the critical mind have been so easily fooled? Why is it that rumors seem so convincing? Scientific studies show the factors determining the degree of believing a rumor are the credibility of the source, the plausibility and the desirability of the news.

- **The credibility of the source**

  Many experiments show strong evidence of the source playing a critical role in the persuasion of believing the rumor. One only listens to people and what they have to say when one wants to. In order to judge the degree of truth one seeks to determine the distribution path. The credibility of the source is positively related to the expertise, reliability, personality and integrity of the person originating the rumor.

  If the informant notices that the rumor is unconvincing he will refer to a more knowledgeable person or a closer source. This point is essential. The one who transmits the message (why would he transmit the rumor if not believing it to be important) wants to convince the other of his opinion. He is already biased towards the message. He identifies himself with the message and adopts it to himself. If one rejects the message, one rejects the whole person. That is why the spreading of a rumor can be considered in many cases as a sequence of persuading actions.

  In financial markets the degree of credibility of the source is greater from personally transmitted rumors than from those transmitted by media. The media usually refer to sources such as, "Industry sources, insiders and other credible people." From that specification credibility is questionable.

- **The plausibility of news**

Rumors are able to spread because they are believed in

  No matter how high the credibility of the source, the message requires a certain plausibility to affect one's opinion. Rumors are able to spread ***because*** they are believed in! Most rumors will therefore be regarded as truthful within the group it circulates.

  In financial markets this can be applied to rumors personally transmitted via telephone, mouth-to-mouth or e-mail as opposed to information services or television. The media are in a convenient position, as they can claim they are just transmitting rumors without judging their plausibility.

The reason for believing a rumor is not only that it can be believed, but it's wanted to be believed

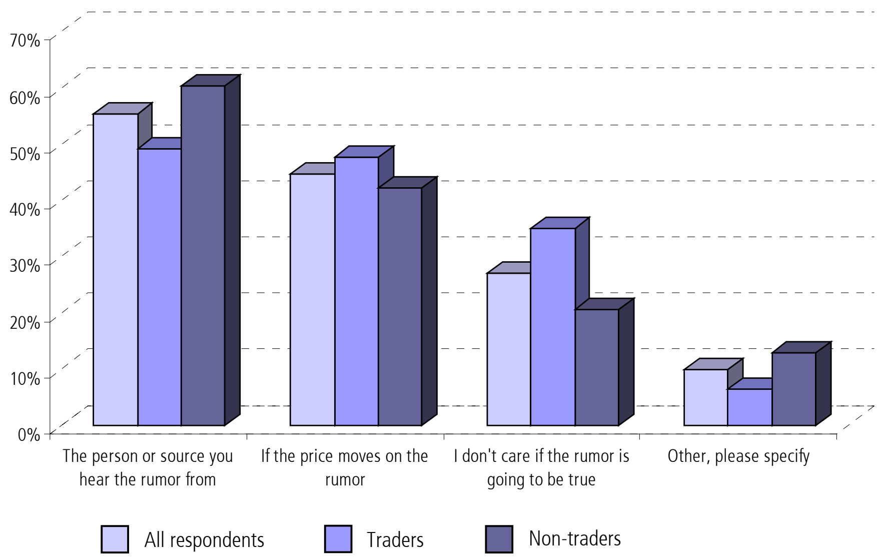
- **The desirability of news**

A rumor is believed not only because it ***can*** be believed but it is ***wanted*** to be believed. Sometimes the desire to believe is so great, that the usual considerations of truth and faith are ignored.

In financial markets this behavior can be dangerous, especially for the institution affected by the rumor. Basically anything can happen from a piece of nonsense if the message's credibility is an unreliable and not a determining factor in believing a rumor. The market participants simply wanted to believe it. In that case it is extremely important for an institution to initiate counter arguments and to communicate them correspondingly in order to avoid damage to themselves.

The participants were asked what factors are important to them in believing a rumor. This is how they responded.

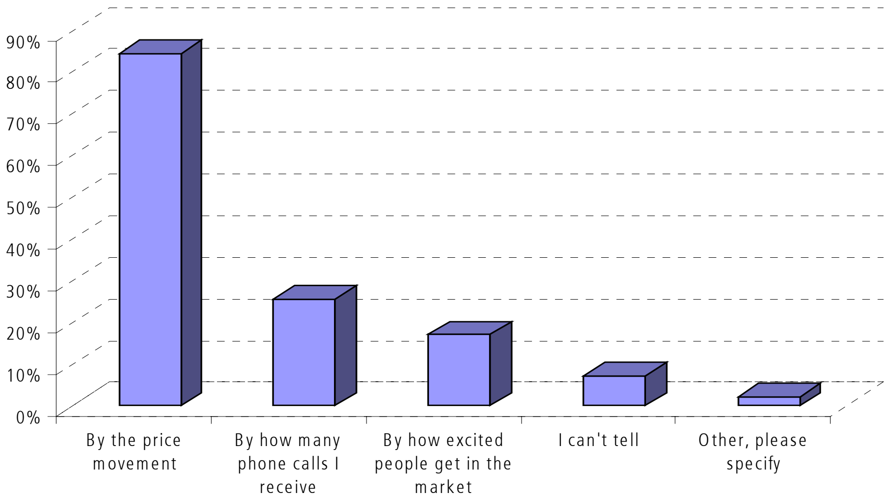
Graph 15: Determining factors of a person believing a rumor (several answers possible)



"It doesn't matter what I believe; the only thing that counts is what the market believes. I therefore don't give a damn if the rumor is going to be true."

Graph 15 shows the determining factors of the survey's participants believing a rumor. In consistence with the available evidence the participants indicate "the person or source one hears the rumor from" to be the greatest determining factor (over 50% of all respondents) of believing a rumor. Another determining factor indicated by over 40% of the participants is "if the price moves on the rumor." The price movement is an indicator of the belief of all participants in financial markets and is an expression of the reaction of the market as a whole. It can be viewed as the combination of plausibility and desirability of the news. Over 30% of the traders state they don't care "if the rumor is going to be true." This is a clear indication that to those people it doesn't matter what happens to the rumor as such. Important is not what the person believes but only how the market values it. Their attitude towards the credibility of the rumor is neutral in that their opinion doesn't count. Only the one who can anticipate the market's belief in the rumor can make money on it. Graph 16 shows the relationship between the belief of the market and price movement.

Graph 16: Determining factors of the market believing a rumor (several answers possible)



The results as shown in graph 16 show strong evidence of the price movement being the determining factor of market belief. Almost 85% of all respondents say "the price movement" indicates the market's belief. "By how many phone calls I receive" is mentioned by 25% of the respondents, all other answers receive noticeably less than 20% of the responses.

The results clearly lead to one conclusion: The market can be viewed as a Keynes Beauty Contest,

"professional investment may be likened to those newspaper competitions..."

"...professional investment may be likened to those newspaper competitions in which the competitors have to pick out the six prettiest faces from a hundred photographs, the prize being awarded to the competitor whose choice most nearly corresponds to the average preferences of the competitors as a whole; so that each competitor whose choice most nearly corresponds to the average preferences of the competitors as a whole: so that each competitor has to pick, not those faces which he himself finds prettiest, but those which he thinks likeliest to catch the fancy of the other competitors, all of whom are looking at the problem from the same point of view. It's not a case of choosing those which, to the best of one's judgement, are really the prettiest, nor even those which average opinion genuinely thinks the prettiest. We have reached the third degree where we devote our intelligences to anticipating what average opinion expects the average opinion to be. And there are some, I believe, who practise the fourth, fifth and higher degrees."[11]

[11] Keynes, The General Theory of Employment, Interest and Money, (1936), p.156.

As a result the only thing that really counts is the anticipation of the other market participant's expectations. The consequence is an infinite regression of the interpretation of the validity of a rumor as well as information processing. So from that perspective, are rumors any different from verified information?

"Ninety percent of what we do is based on perception."

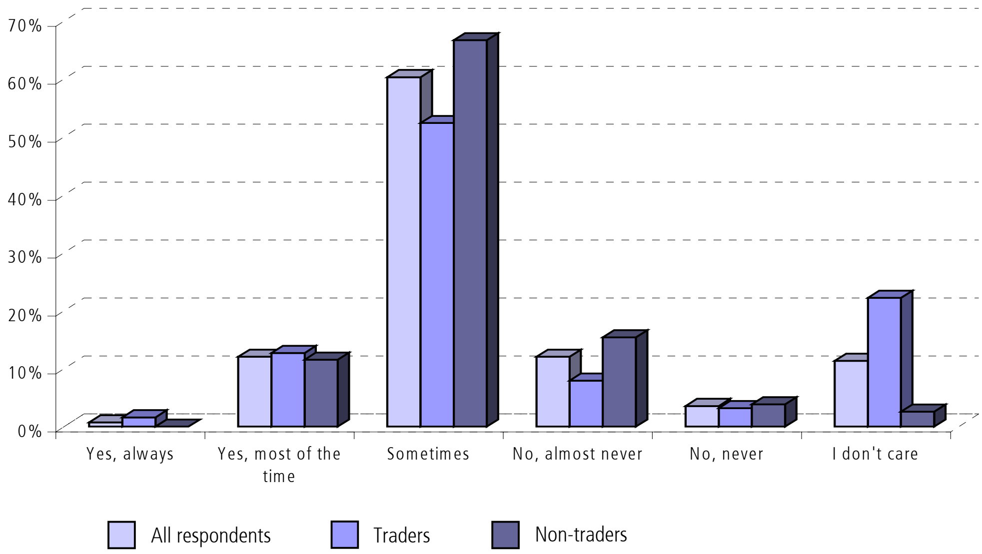
The following citation describes the situation nicely, "Ninety percent of what we do is based on perception. It doesn't matter if that perception is right or wrong or real. It only matters that other people in the market believe it. I may know it's crazy, I may think it's wrong. But I lose my shirt by ignoring it."[12]

[12] Wall Street Journal, Making Book on the Buck, Sept. 23, 1988, p. 17.

Does it matter what you believe?

If the market can be viewed as a Keynes beauty contest, the following question is crucial: How difficult is it to estimate the average belief of other market participants? As a basis for the estimate of this average belief is the participant's own personal belief. The question therefore arises, how difficult is it for the individual to estimate the rumor's validity?

Graph 17: Answer to the question: How often can you predict that the rumor is going to be true?



Quality of validity factors are mixed

The results lead to the conclusion, that the participants "sometimes" are able to estimate the rumor's validity. Therefore it should "sometimes" be possible to estimate the average market belief. Graph 17 also shows that over 20% of traders don't care whether the rumor becomes true (this agrees well with the data of graph 15, page 34)

It is quite likely that a number of participants overestimate their ability of predicting the rumor's validity. If that would be true, then the true distribution would be even more shifted to the right. Because of the difficulty of estimating a rumor's validity, most people simply look at the price movement as the indicator of the average market belief.

People care if the rumor is going to be true in the end

Does it really matter if the rumor is going to become true in the end? Why should one care? Is there any personal involvement? One is only personally involved, if having traded upon the rumor and real money profits are one of the consequences. Therefore it shouldn't matter in the end if the rumor becomes true.

Graph 18: Answer to the question: Do you care in the end if the rumor becomes true?

The responses to that question show an astonishingly high percentage answering "yes" (over 35%). Why is this the case? The only reasonable explanation is a feeling of responsibility or a personal relationship towards the rumor. For those participants who trade on rumors it is understandable that they care whether the rumor becomes true. However, it is important to know that many positions generated from trades on rumors are not held until the verification of the rumor. These are speculative positions for money profits based on the short-term price development of the asset. In addition to the respondents answering "no," the traders mentioned above would not have to care about the verification of the rumor as well.

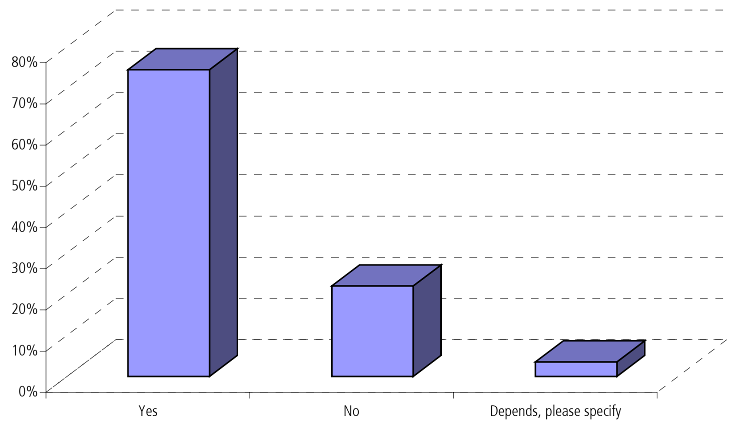
Network formation

The value of information networks

Personal networks are an important tool for traders. They help to build beliefs, to confirm views from other traders, to exchange news or simply to chat. They can deliver firsthand information, keeping one at the edge of the news flow. The same holds for rumors. How important are information networks when it comes to rumors in financial markets? Can one make systematic profits from them? In order to build up information networks one has to find those persons providing and exchanging valuable information.

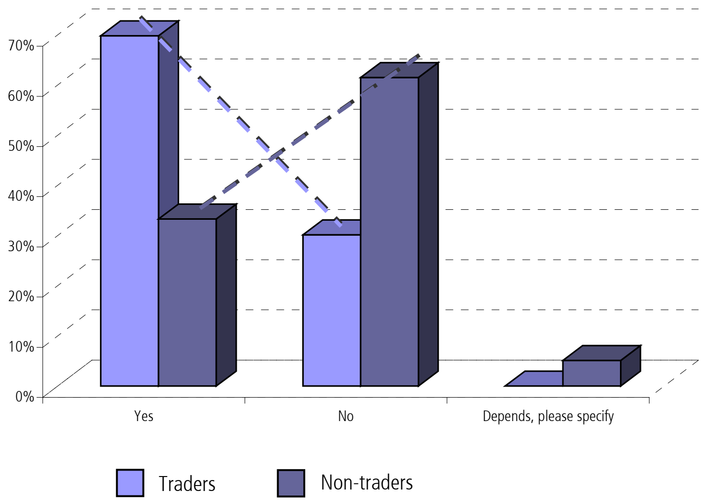
The participants keep track of their information sources

Graph 19: Answer to the question: Do you keep in mind which information sources have provided you with rumors?



Over 70% of the participants keep track of the person who has provided them with rumors. This is an important requirement for the formation of information networks. Not everyone will tell you rumors nor will you tell rumors to everyone you know. The people forming information networks know and trust each other and have a closer relationship to each other. These people have a priority status. Because of this close relationship, one expects a mutual exchange of rumors and other firsthand information. Is this observed in the market?

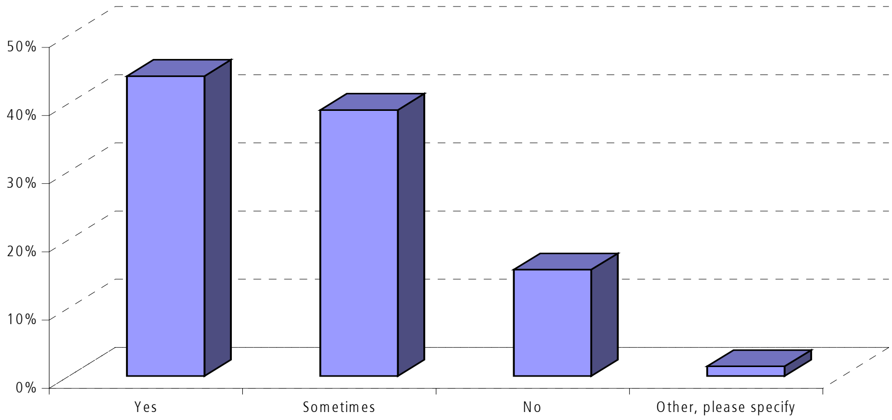
Graph 20: Answer to the question: Do you spread a rumor to priority people – hoping they will do the same?



"Information networks are one of the most important features when dealing with rumors"

The answers to this question provide clear results. The difference between the "yes" and "no" answers among traders and non-traders is very pronounced (70% "yes" vs. 30% "no" among traders, 33% "yes" vs. 61% "no" among non-traders). This is a clear indication that traders build information networks in comparison to non-traders. Traders regard them as important. One person interviewed mentioned, "This feature is one of the most important ones when dealing with rumors in financial markets." The verification of one's own opinion with that of other people you trust is absolutely crucial. This is a strong issue among traders, but not among non-traders. The other explanation for the non-traders response is simply that they verify their opinion in other ways. However, this is not regarded as very likely.

Graph 21: Answer to the question: Do information networks evolve such that for a while a group of traders knows more than others?



The information head start of networks can last only a few seconds or at most minutes

The most important question with regards to information networks is whether their members know more than others. Secondly, can they profit from them? Over 40% of all respondents state "for a while a group of traders know more than others" and nearly 40% state "sometimes." These statements have to be judged cautiously. In graph 14 (see page 30) over 70% of traders claim "that within minutes the entire trader community knows about the rumor." If a head start actually exists, according to the respondents, it can last only a few seconds, or up to minutes. Making systematic profits from this is questionable. More realistically, the results show some participants may know more than others for a short period of time. The thought of a few mysterious, strategic traders may have shifted the distribution more to the left than in reality. The conclusion concerning information networks is the following: they help the participants confirm their views but they don't guarantee higher profits.

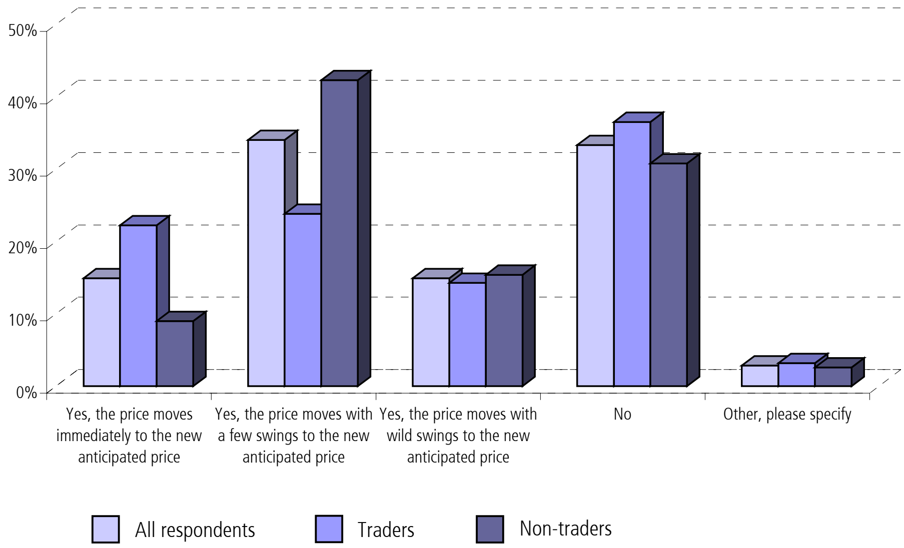
Trading on rumors

Systematic price patterns?

The question that interests traders most is whether one can systematically make money on rumors. Does a secret formula exist to determine the point in time for getting in and getting out of the market? It is argued in this report that this is not the case and the price moves very similarly from rumors, if not identically, to those of other news. Do the participants agree with this statement? They tell us the following to this question:

Price patterns resulting from rumors don't differ from price patterns from information

Graph 22: Answer to the question: Do systematic price patterns exist when rumors evolve?



There are several issues to be addressed from the answers. Over 35% of the traders state there exist no systematic price patterns when rumors evolve. Furthermore, over 20% of the traders say "the price moves immediately to the new anticipated price." In that case the market would be completely efficient and no systematic profits would be possible. More non-traders than traders say the price moves with swings to the new anticipated level. A fact to be recognized is that swings can occur from reactions to news with high information content as well. When a company releases its annual statement (an event with high information content) high volume trading is usually observed combined with corresponding price swings. This is not due to participants receiving different information than other participants but due to different or asymmetrical interpretation. It is the asymmetrical information interpretation that causes the corresponding trading behavior leading to high traded volume and price changes. Rumors are in that sense no different from information. It is a rather daring assumption to assume that systematic profits can be made from such price movements.

Rumor sources and profits

Can at least the creator of the rumor profit even though no systematic price patterns evolve? This question is again one to test the belief in the mysterious and strategic operating source able to achieve riskless profits. Because the impact of the rumor can be assessed only by the people spreading it, not alone by the source, it is argued there is no way for the source to profit systematically. How do the participants assess the same question?

The mystery story continues to survive

Graph 23: Answer to the question: Can the person who has created the rumor profit from it systematically?

Traders have a more sophisticated perception of (not) making systematic profits on rumors

The results are revealing since once more the answers of the traders and non-traders show clear differences. Among all respondents 70% claim the source is, at least possibly, able to profit systematically from the rumor. Yet at the same time many more traders than non-traders believe this is not possible (37% vs. 15%). The idea of the mysterious, strategic source survives persistently in people's minds. It seems though, traders have a more sophisticated view. The source cannot foresee the reaction of the market to the rumor. Out of one hundred initiated messages perhaps five will trigger the creation of a rumor. To know which of the five messages and how the market will react to them is impossible. Of course it is always possible to find an ex post explanation for a price movement. André Kostolany has described the situation as follows, „The news doesn't determine the prices but the prices the news. At the end of the day every market participant looks for arguments to explain a price movement and that with arguments, which he wouldn't have dreamt of two hours ago!"[13] Of course, there do exist factors advantageous to the spreading and belief of a rumor. However, to conclude that the source is able to profit from it *systematically* is highly improbable. The people interviewed were asked what their trading strategy would be for making systematic profits as the creator of a rumor. They all answered in the same fashion, "I have no idea what kind of trading strategy I would have to follow!"

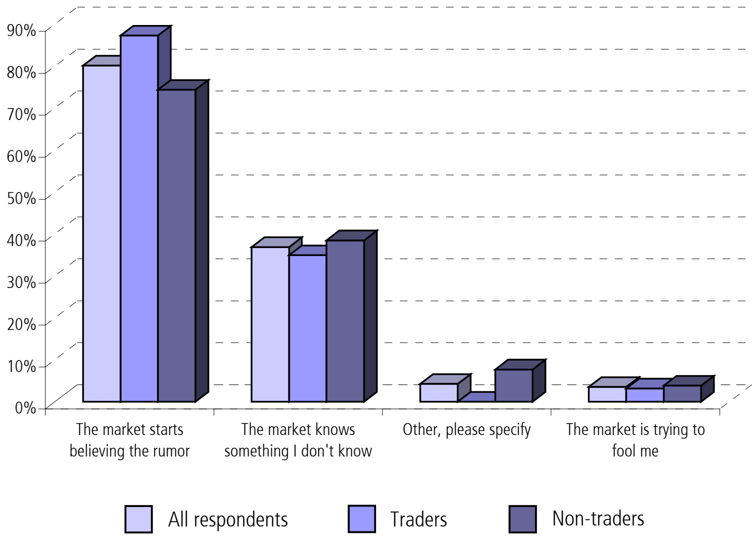
[13] André Kostolany, Kostolanys Börsenpsychologie, 1998, p. 23, own translation.

Thoughts triggered by the price movement

What happens first in the participant's minds when they see something going on in the market? Is the view confirmed that people think the price movement is the determining factor of the market believing the rumor?

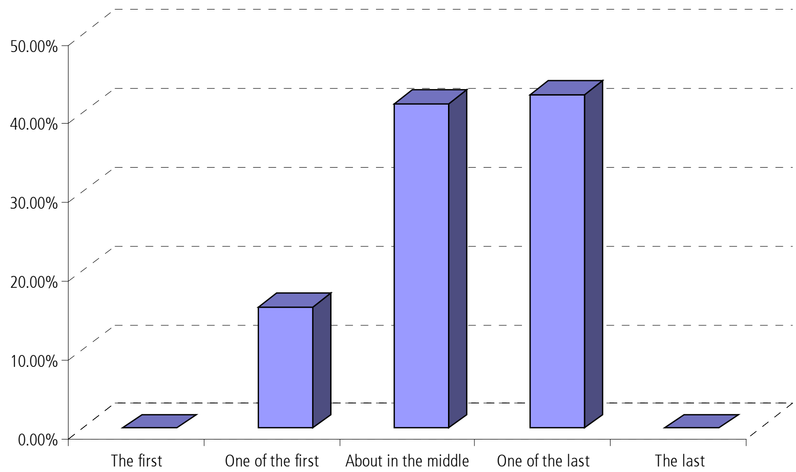
People think the market starts believing the rumor when the price moves

Graph 24: Answer to the question: What are your thoughts when the price moves on a rumor? (several answers possible)



As in graph 16 (see page 34) about 80% of all respondents state "the market is starting to believe the rumor" when the price moves on it. This is a full confirmation of the results seen so far in this report. It is interesting to note that 35% (traders included) state "the market knows something that I don't know." How can this high percentage be explained? A possible explanation is that these participants feel left out of the spreading process. It is this worrying feeling that others possibly know more than oneself. The following graph shows the frequency of answers to the question "are you thought of being one of the first or last to hear a rumor?" for the subgroup giving the answer "the market knows something I don't know" (see graph 24).

Graph 25: Frequency of answers to the question "are you thought of being one of the first or last to hear a rumor?" for the subgroup giving the answer "the market knows something I don't know"



There is some evidence the participants hearing the rumor in middle or as one of the last believe they miss something

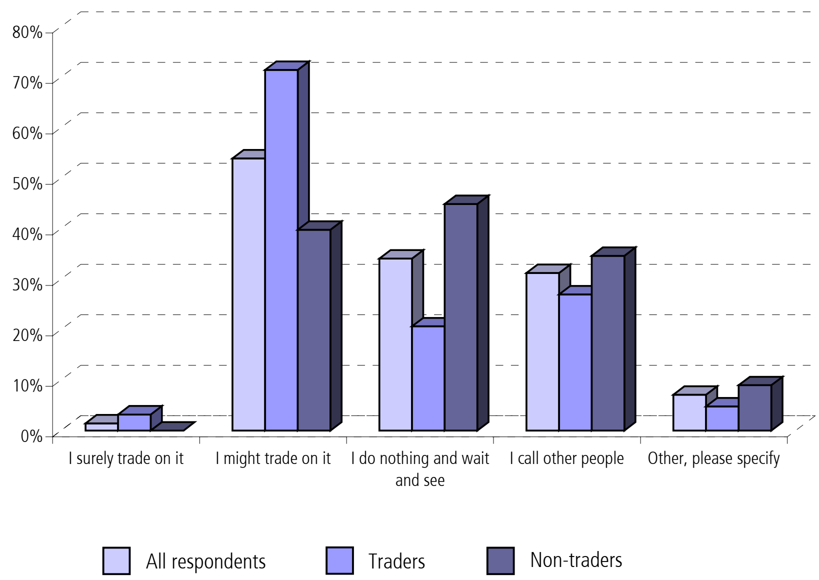
The graph shows a correlation between those participants believing they are "about in the middle" or "one of the last" and those tending to believe "the market knows something I don't know" (in both cases over 40%, 79 and 25 samples). Very few participants stating to be "one of the first" to hear a rumor (15%) also believe "the market knows something I don't know." The categories "the first" and "the last" can be ignored since there is only one response in each case. What kind of conclusions can be drawn from this? Either the participants believing to hear the rumor first are better informed (which is conceivable but not very plausible) or they exhibit more self-confidence. Why would 35% of the traders claim "the market knows something that they don't know?" It obviously reflects their feeling and their lack of self-confidence. By considering themselves to be in the middle or late in hearing a rumor they think they miss something when the price moves. As shown in this report this does not have to be the case. If they are connected to various information services and have a well-established personal network, there are no reasons not to be on top of the news flow. Maybe this report can encourage these participants to rethink their role and position within the market.

Actions triggered by the price movement

What the participants think is one thing, but what do they really do when they see the price moving? People are judged by their actions and not by their words.

There is strong evidence of herding behavior among the traders after the price has moved on a rumor

Graph 26: Answer to the question: What are your actions when the price moves on a rumor? (several answers possible)



The results from the question above are intriguing: 75% of all traders testify they either "surely" or "might" trade on the rumor, while only 40% of non-traders answer the same. Traders show strong signs of herding behavior. They jump on the bandwagon. Even though the price has already moved, they still believe they can make profits from buying. This is a classical form of herding behavior leading to short-term momentum, excess volatility and long-term reversal. This is a frequently observed phenomena in financial markets. Jumping on the bandwagon works as long as there are more participants pushing the price further up. This behavior creates a trend, signaling the market's belief in the rumor. Whether all the participants trading the asset actually believe the rumor to be true, is another question.

Herding behavior and irrational traders

How can herding behavior be explained? Let's assume the market participant's actions are, with the information they have and in coordination with other market participants, thought to be advantageous. Such behavior can be considered to be rational, although it does not fulfill the classical economical assumptions of rational behavior. The actions are subjective to achieve their own defined goals. Let's additionally assume, at least for large, liquid blue chips it's not possible for a single market participant to steer and control the traded price. The price, which is the unintended result of the sum of all intended actions, is obviously what interests the market participants most.

They are therefore forced to adjust their positions to the unintended result. This can happen e.g. based on the development of their portfolio relative to a benchmark or due to new news, such as rumors. As a result of the evaluation of their own position with respect to the new, unintended price, the position has to be reviewed and adjusted. The reason why this doesn't happen simultaneously is due to information processing asymmetries. With these kind of information processing asymmetries it is not understood that a few market participants know more than others, but that the available information is processed and interpreted differently. When the positions are adjusted to the new, unintended result, it is connected with the largest capital flows. In that sense the behavior of the single market participant is rational and "socially influenced" in that his positions are adjusted to the market development, which is an expression of the actions of an anonymous, but not at all irrational mass of people.

Risky behavior doesn't imply irrational behavior

Herding behavior doesn't have to be an irrational behavior as long as the market participant's expectation is to find another participant buying it for a higher price. The participant simply has to be aware of the risk involved. A risky behavior does not necessarily imply an irrational behavior. If a rational action is defined as an utility-maximizing Bayesian in an efficient market, this kind of behavior would be classified as irrational. If though, an alternative definition of rationality is used, e.g. bounded- or procedural rationality, it would not necessarily have to be classified as irrational.

Overconfidence means underestimation of risk

It is sometimes argued in the scientific literature that irrational traders should be driven out of the market because they permanently lose money. This does not have to be case. If so-called irrational traders are overconfident of their ability to forecast the future risk-return profile of an asset, it simply means they underestimate its risk. If they underestimate its risk they still are compensated for the true risk taken and earn the corresponding rate of return. So from this perspective it can't be argued irrational traders should be driven out of market.

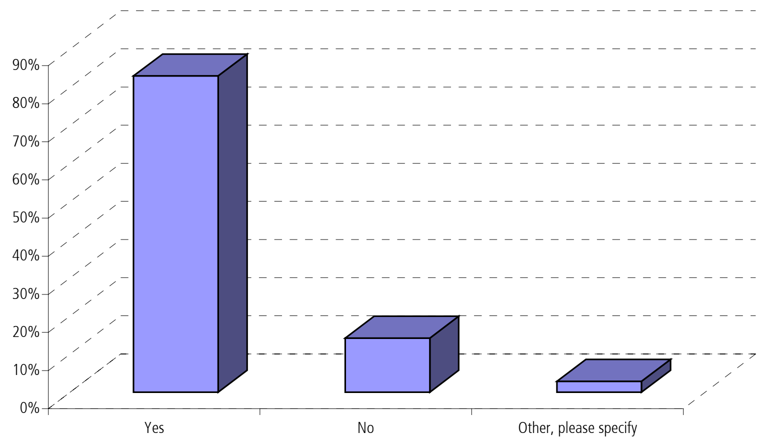
The received answers indicate that non-traders are not willing to take the same amount of risk as traders. Considerably more non-traders than traders either do "nothing and wait and see" or "call other people." Nevertheless about 40% of non-traders might trade on the rumor. They seem to be a bit more cautious when trading on a rumor yet are subject to herding behavior as well.

Rumors vs. information

Trading on rumors vs. trading on information

The results in this report indicate that trading on rumors vs. trading on information should not greatly differ from each other. The participants view this issue differently.

Graph 27: Answer to the question: Do you trade differently on rumors than on information?



"Rumors are good for short-term trading"

Over 80% of all respondents answered they trade differently on rumors than on verified information. Several of those interviewed confirmed the participant's view that they trade differently on rumors in comparison to information. Their explanation is that rumors are usually short-lived and therefore are traded on for much shorter time spans than information. Rumors are good for short-term profits but not regarded as a good basis for long-term investments. Long-term investors rather wait until the rumor is either confirmed or denied by an official source.

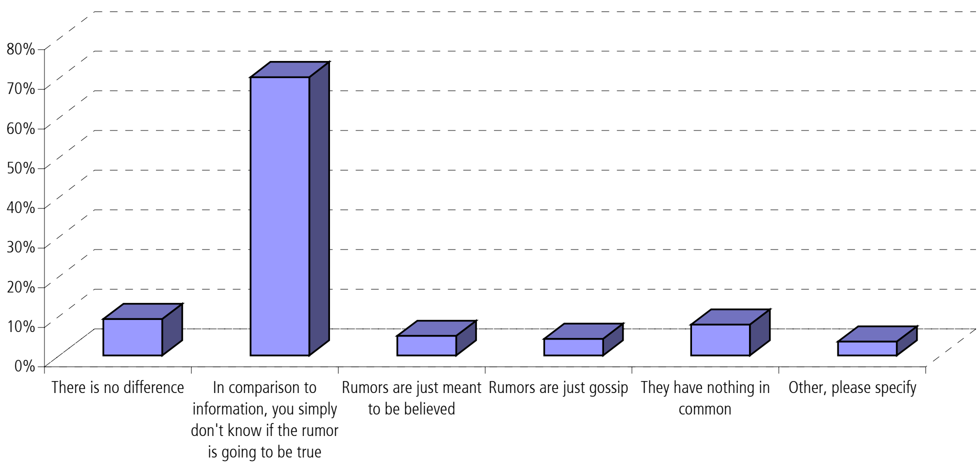
"I principally don't trade on rumors"

Some persons interviewed stated that out of principle they never trade on rumors. Why? What is there to rumors that people don't trade on them? Where exactly is the difference between trading on a rumor and trading on verified information? True, a rumor is an unconfirmed piece of news and one could therefore argue there is more uncertainty involved than when trading on information. This fact alone doesn't justify the attitude of not trading at all on rumors. There has to be something morally unacceptable or a matter of attitude which keeps people from trading on rumors.

The difference between a rumor and information

If, as in graph 27, rumors are differently traded on than information, how do the participants view rumors differently from information? This question was the last one asked in order to prevent a bias on answers to further questions.

Graph 28: Answer to the question: How do you view rumors differently from information for your professional work?



The degree of truth is the only uncertain variable with rumors

The participant's opinion is clear. 70% of the respondents indicate "in comparison to information one simply doesn't know if the rumor is going to be true." The answers with the next lower percentages are "there is no difference" with 9% and "they have nothing in common" with 8%. If it's true what the participants state with regard to their professional work, rumors differ from information only in the degree of uncertainty since the level of truth is unknown. Apart from this uncertainty they should not be treated differently. However, the results in graph 27 (see page 48) indicate this is not the case. The participants contradict themselves in that they don't act on rumors as if they are just unconfirmed information, but on the mystique of a strategic operating source. Possibly it is time for the actors to take a break and rethink their perception of rumors. They are "a spontaneous product of emergence and spreading of news among the market participants that has either not yet been publicly confirmed or denied by official sources."[14]

[14] Compare Kapferer, Gerüchte, 1995, p. 25, own translation.

Conclusions and recommendations

The mystery is gone

A rumor as a social process

Rumors are in no way mysterious or even magical as many people in financial markets still believe. They follow strong logical rules to be analyzed in detail. "A rumor is the emergence and spreading of news in a societal organism that either has not been yet publicly confirmed or been denied by official sources."[15] Financial markets are a fruitful ground for rumors. This is due to the fact that in such environments a limited number of people, all experts in the field, have to make risky decisions under constant stress and anxiety, while being flooded with news.

The "vulnerability" of financial markets for rumors

These circumstances make financial markets extremely "vulnerable" to the emergence of rumors. Since rumors are the oldest mass medium in the world, there will be rumors where ever there are financial markets. Many people immediately show a negative reaction when hearing the word rumor. They consider rumors to be something dangerous, difficult to comprehend or even evil and as such they should be banned. This view is not supported in this report. A detailed analysis during the early phase of a rumor permits insight and better understanding of its specific characteristics.

The public is responsible for the size and impact of the rumor

Rumors do not appear without any reason. There is always something in the background, which can be an event, a detail or pure fantasy. It can be processed spontaneously or deliberately provoked. The source is not as important as many believe. Crucial for the spreading and the impact of the rumor is what the public makes of it.

Always blame the source

The overconfidence of non-traders

Although for many people the question of source is the most interesting and often an intriguing question, from a scientific point of view it is not. The idea of a hidden, strategic operating source of a rumor survives persistently and permits the public to justify believing a "false" rumor. The source can be blamed for everything and the responsibility for its creation can be pushed off completely. This report argues that the evaluation of the rumors' source in financial markets is almost impossible. The answers given by traders confirm largely this view, while non-traders on average claim to know the source of the rumor more often. This leads to the conclusion that non-traders are highly overconfident concerning their capability of evaluating the source of a rumor.

Rumors are a spontaneous product

Rumors are spread unconsciously and without intention

Rumors in financial markets evolve most often spontaneously and without any intended reason, although many participants think otherwise. They are heard on average a few times a week through media like information services, e-mail or television or orally by telephone or mouth-to-mouth. The intuition of many market participants, that the frequency of rumors is considerably higher in volatile than in non volatile markets, is confirmed. This phenomena is easily explained by the desire of receiving additional news in uncertain times, even if they are less accurate. When participants hear rumors they do two things: they observe the price movement and contact other people to hear their thoughts. Interestingly enough talking to other people is already a form of spreading the rumor, although it's normally unintended. By approaching other people they signal that they consider the rumor to be important, not to say that they already believe it. They let the rumor spread and become important without being aware of it.

[15] Compare Kapferer, Gerüchte, 1995, p. 25, own translation.

Prices reflect beliefs

Rumors can only spread because they are believed in!

Rumors are not spread automatically, people have to talk about them. There are several conditions that influence the spread of rumors. These conditions depend among others on the medium through which the rumor passes. In financial markets one talks about rumors to inquire and convince. The market actors are not sure whether others possibly know more than themselves. By talking about a rumor it is hoped to receive more accurate, validated news. It's important to realize that by contacting others the person inquiring already exposes himself to considering the rumor to be significant. The people approaching others are already biased and look for views supporting their own. If the person would not consider it to be significant, he would not want to talk about it. Rumors can only spread because they are believed in!

The media are in a convenient position but have to accept responsibility

The media are in a very convenient situation because they can claim simply transmitting the rumor without judging its content. It's "to each his own" what he or she does with the rumor. The media say they can't be blamed for any consequences of a rumor. Everyone has to judge the rumor's accuracy and validity for himself. This is true to a certain extent. However, the media are responsible for the selection and presentation of news. They well know that how the news is presented tremendously influences the reaction of people. It is their responsibility to judge and evaluate what and how news are presented to the public.

Rumors in financial markets travel at high speed

The results of this survey suggest that participants do not necessarily overestimate their ranking concerning the order of hearing a rumor. However, from our results over 70% of the traders claim that within minutes the entire trader community knows about it. Rumors therefore travel at high speed. A typical statement of an interviewer was, "All of a sudden there is a rumor and everyone knows about it."

Some people simply want to believe a rumor

Believing in rumors depends on the credibility of the source, the plausibility and the desirability of the news. Rumors may simply be believed because people want to believe them. For most participants the determining factors of believing a rumor are the person they hear the rumor from and the price movement. 25% of the respondents mention that they don't care at all if the rumor is going to be true. The logic behind this answer is simple in that one's personal opinion does not count. The only thing that matters is to anticipate the market's belief.

The price movement is the indicator whether the market believes the rumor

The determining factors whether the market believes a rumor can be reduced to one: the price movement. Almost 85% of the respondents say that the price movement is the indicator of the market believing the rumor. The price movement therefore reflects the belief of the market as an aggregate of all beliefs.

Why do so many people care about the outcome of the rumor?

Astonishingly, many participants not trading on rumors do care in the end if the rumor becomes true. Why should these people care? The only reasonable explanation of this is that the market participants feel a certain responsibility or have developed a certain relationship towards it. Even the actors who have traded on rumors would not necessarily have to care, since many such trades are short-term and speculative. If the position is not kept until the verification of the rumor, they would not have to care as well.

Making money on rumors?

There exists no secret formula

People who were hoping for a formula or a checklist on when to trade on rumors will be disappointed. Making systematic profits is very difficult if not impossible. However, it's worthwhile to analyze the rumor in its early phase in detail. The analysis will help recognizing the factors driving the emergence process as well as the potential impact of the rumor. This should develop the participant's intuition for judging the market's reaction to the rumor.

For a short period of time, information networks are able to know more than others

Information networks can be of great value if properly applied

Information networks are of great value, if they are used properly but not if they are simply used as a tool for convincing other people of one's own opinion. Information networks when used for the exchange of different views and perceptions can contribute to a more precise and accurate assessment of the situation. The answers of the participants confirm this view and most of them remember the sources that provided them with rumors. Furthermore, most traders spread a rumor to priority people, hoping for mutual action. Many participants believe that it is possible for information networks to know more than other people, at least for a while. This view is not challenged. However, 70% of the traders claim that within minutes the entire trader community knows about the rumor. Since everyone follows the same information services and other media where many of the rumors come from, it is not surprising that it takes only a very short time until everyone is informed. Following this, the time interval from the establishment of information networks to the instant of everyone knowing the rumor is only a matter of seconds or minutes.

Making systematic profits from rumors is highly unlikely

When it comes to systematic price patterns on rumors in financial markets the participants don't agree on a single opinion. They disagree on whether such patterns exist, and if so, how they look. Even if price patterns exist and the price swings to the new anticipated level (as many respondents said), it's still difficult to determine the appearance and the dimension of the swings. This leads to the conclusion that it is very difficult, if not impossible, to anticipate such price swings. Another question is whether the person creating the rumor can profit systematically. While many participants still believe this might be possible, it is argued that the creator faces essentially the same difficulties as other market participants. The creator does not know how the public will react to the initiated news - if it will be ignored or if it will develop into a rumor strongly impacting the price of the asset. Furthermore, if there is a real impact on the market, then anticipating how and how strongly the price will move is very difficult if not impossible.

Herding behavior is evident among traders

One factor to be observed with relatively high accuracy, is the market participants reaction to a rumor after a price movement. They regard the price signal as a sign of belief and jump on the bandwagon. 75% of traders testified that they certainly or possibly will trade on it. This is strong evidence of herding behavior among traders. Herding behavior leads to short-term momentum, excess volatility and long-term reversal that is observed so often in financial markets. Such behavior leads to trends, trends that can be one's friend if anticipated properly. This is exactly the difficulty. It is easy to discover a trend, but is it worthwhile riding it? How does one know its magnitude and its turning point? These questions arising from rumors are absolutely identical to those arising from any event or piece of news and must be tackled on an ongoing basis.

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Contact

If you have any questions or would like receive additional information in relation to the survey we would kindly ask you to contact one of the following persons.

Mark P. Schindler
Institute for Empirical Research in Economics
University of Zurich
Blümlisalpstr. 10
CH-8006 Zurich
Switzerland
Tel. +41 (0)1 634 37 64
E-mail: mark@iew.unizh.ch

or

Prof. Dr. Thorsten Hens
Institute for Empirical Research in Economics
University of Zurich
Blümlisalpstr. 10
CH-8006 Zürich
Switzerland
Tel. +41 (0)1 634 37 06
E-mail: thens@iew.unizh.ch

For more information please consult:
http://www.iew.unizh.ch/institute/chairs/hens/index.en.html

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University of Zurich
Institute for Empirical Research in Economics

Blümlisalpstr. 10
CH-8006 Zurich
Switzerland

Tel. +41 (0)1 634 37 05
Fax +41 (0)1 634 49 07

http://www.iew.unizh.ch
E-mail: bibiewzh@iew.unizh.ch