

# The same yet different: the effects of **vividness** in a laboratory asset market

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## WHAT IS VIVIDNESS?

In psychology, displays of information are called vivid if they are more proximate, emotionally engaging and imagery producing (Nisbett and Ross, 1980). In social psychology, vividness sometimes refers to the ease and conviction with which something is recalled in memory. Vividness is often mentioned alongside saliency and availability as being able to draw attention. However, the *modi operandi* of the latter are different. Saliency originates from attribution, availability from probability and vividness from persuasion. The three concepts reinforce each other in capturing attention and are essential in story building. They overlap partially and can be hard to disentangle in practice outside their theoretical construct. Hence an experiment!

## RESEARCH OBJECTIVES:

At a behavioral level we examine the impact of vivid attributes on trading and how these transcend the market mechanisms.

From a broader societal perspective, we identify what stimulates individuals towards meaningful societal interactions through market environments and suggest how media, both traditional and machine learning, assist this process.

## EXPERIMENT:

Participants play a computer game, indicating whether they want to buy or sell shares including limit order price and quantity. After all participants indicate their willingness to trade, the market clears by maximizing volume. Participants repeat this 40 times. While trading, information generated from two sources (system and social) are presented to participants. We are interested in how participants react to this information. System content consists of a directed flow of information pulses about future cash flows, while social content is constructed by collecting feedback responses from the participants during the experiment. We design treatments to influence the attention participants exhibit by switching information carriers from vivid to non-vivid modes and vice versa without changing content or context.

less vivid textual information

A survey of traders' expectations show that they on average anticipate the next dividend payout for < name and ticker > to be \$ < number >

SOCIAL



less vivid

less vivid textual information

Analysts' forecast of the next expected dividend payout for < name and ticker > is \$ < number >

SYSTEM



VIVID

VIVID TEXTUAL INFORMATION

VIVID TEXTUAL INFORMATION

**NEWSFLASH:** A business survey of traders with experience in trading < name and ticker > reveals that they expect a strong {improvement; decline} in performance. The {optimism; pessimism} of the traders could be attributed to {improved; worsening} market {demand; conditions} for the company's products. In addition the results from the survey indicate that traders have an increasingly {positive; negative} outlook regarding the financial position of the company. Traders in the survey expect the next dividend for to {increase; decrease} to \$ < number >

**NEWSFLASH:** Independent analysts from major financial institutions forecast a strong performance by < name and ticker >. The {optimism; pessimism} of analysts is driven by a {surge; crash} in orders for the company's products. Moreover, the analysts' opinion is reinforced by the {solid; gloomy} financial condition of the company. All analysts unanimously agree on the {positive; negative} outlook for and predict the next dividend to rise to \$ < number >

Treatment	No. of participants						vivid	total	Obs
	one	two	three	four	five	six			
Blind	-	43	-	-	35	-	78	-	1560
Muted	-	-	35	-	-	36	71	0	1420
Sustain	46	-	-	-	-	36	82	1640	1640
Block	46	-	-	45	-	-	91	910	1820
Escalate	-	-	-	45	35	-	80	960	1600
Decay	-	43	35	-	-	-	78	936	1560
Total							4446	9600	

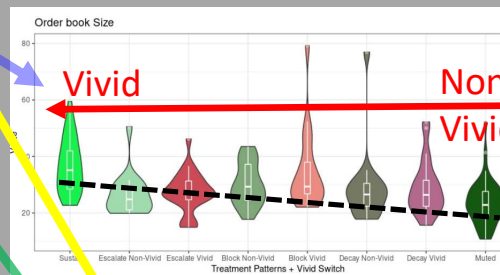
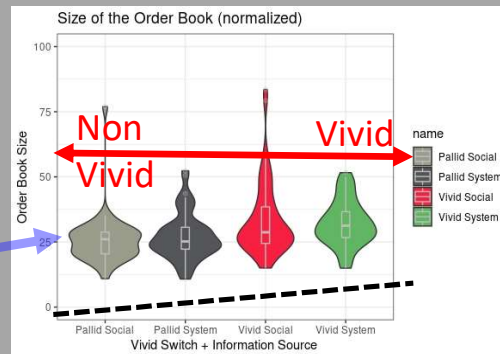
## HYPOTHESES:

**H1:** Vivid treatment of information leads to more attention and thicker order book components

**H2:** Vivid portrayals of information interact with the sentiment participants declare (see paper)

**H3:** Vivid treatment of system information adjusts priors

**H4:** Vivid treatment of social content confirms priors



Variable	$R_t$		$\frac{P_t}{E(P_t)}$	
	info carrier	companion	info carrier	companion
<b>System</b>				
$\beta_{Vivid}^{System} - \beta_{Pallid}^{System}$	0.063**	0.037	-0.327**	0.027
standard error	0.028	0.055	0.151	0.077
$\beta_{Vivid}^{Social} - \beta_{Pallid}^{Social}$	0.045**	-0.005	-0.289**	-0.023
standard error	0.027	0.052	0.143	0.1073
<b>Social</b>				
$\beta_{Vivid}^{Social} - \beta_{Pallid}^{Social}$	0.034*	0.042	0.095	0.053
standard error	0.020	0.039	0.106	0.055
<b>Control Variables</b>				
$R_{t-1}$	0.255***	0.328	-0.121	0.154
standard error	0.059	0.319	0.069	0.1
$CF_{t-1}$	0.245***	0.185	0.270	0.095
standard error	0.031	0.179	0.125	0.189
$\frac{P_{t-1}}{E(P_{t-1})}$	-	-	0.902***	0.797***
standard error	-	-	0.036	0.047
$R^2$	0.372	0.051	0.806	0.646

## ACKNOWLEDGEMENTS AND CONTACTS

The authors thank participants to this study, the Hong Kong Polytechnic University for IRG funding, CityU of Hong Kong for SRG funding of this project and Nazarbayev University for a Social Policy Grant.

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## CONCLUSION

Vividness is different from saliency and availability.

Vividness forms a triptych with saliency and availability

Effects of treating information with vivid attributes are measurable and strong.

Individual responses to vivid information indicate more attention and engagement, resulting in more willingness to trade.

Effects of vividness on individual responses transcend the market clearing mechanism to also affect market variables.

## WHY IS THIS IMPORTANT?

Numerical data is not just about numbers.

To some individuals the usefulness and interpretation of numerical data depends on the presentation form.

Some participants react differently to vividly presented information than to non-vivid information.

Understanding the effect on participants is important when designing and managing trading platforms (market microstructure, the mix of human and algorithmic trading), when releasing company statements, and when reporting data as financial press (classic and AI).

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