ntroduction	Outcomes of Effort	Effort and Performance	Causation 00	Conclusion O

(Not) Everybody's Working for the Weekend: A Study of Mutual Fund Manager Effort

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American Finance Association

January 3, 2025

Introduction ●0000	Outcomes of Effort	Effort and Performance	Causation 00	Conclusion O

Moral hazard and observability

Bengt Holmström

Swedish School of Economics and Business Administration

The role of imperfect information in a principal-agent relationship subject to moral hazard is considered. A necessary and sufficient condition for imperfect information to improve on contracts based on the payoff alone is derived, and a characterization of the optimal use of such information is given.

1. Introduction

It has long been recognized that a problem of moral hazard may arise when individuals engages in risk sharing under conditions such that their privately taken actions affect the probability distribution of the outcome. This situation is common in insurance, labor contraining, and the delegation of decisionmaking responsibility, to give a few examples. In these instances Pareto-optimal risk sharing is generally precluded, because it will not induce proper incentives for taking correct actions. Instead, only a second-best solution, which trades off one of the risk-sharing benefits for provision of incensives, can be achieved.



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Moral hazard a	and observability			
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	Economists have long been con that arise when decision making i who are not the firm's security h development of "behavioral" an which reject the classical mode	terned with the incentive problems n a firm is the province of managers olders. ¹ One outcome has been the d "managerial" theories of the firm d of an entrepreneur, or owner-		

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Introduction •0000	Outcomes of Effort 000	Effort and Performance	Causation 00	Conclus O
		Performance Pay and Top-Manage Incentives	ment	
Moral hazard a	and observability			
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The role of imperfect info to moral hazard is considered information to improve our a characterization of the or 1. Introduction 1. It has long been recogn individuals engage in risk taken actions affect the pro- is common in insurance. Iab responsibility. to give a fey- taking correct actions. Inst some of the risk-sharing ber 1.33 ,	Eugene F. Fama d. A nece University of Chicago contracted University of Chicago timal au This paper attempts to exp ership and courtor, typical that a corporation has over eventing the paper attempts to exp ership and courtor, typical This paper attempts to exp ership and courtor, typical that a corporation has over energy or contra- tistics for discipling and upportunities Second with a discipling and upportunities that is the firm, and in discipling and upportunities Second with and out who are not the firm's secu- development of "behavioral which reject the classical	University of Rochater University of Rochater University of Rochater University of Rochater Our estimates of the pay-performance relation (int tions, stockholdings, and dismissal) for chief executi cate that CEO wealth changes \$3.25 for every \$1 shareholder walth. Ahlough the increatives gen overship are large relative to pay and dismissal if CEOs hold trivial fractions of ther firms stock, and e performance estimitivity. Declines in both the pay-pe tion and the level of CEO pay since the 1930s are con hypothesis. Difference of the comportation's chief executive IO,7955 citations concerned with the increative problems inity in alfern is the province of managers in alf-managerial' theories of the firms model of an entrepreneur, or owner-	luding pay, op- ve officers indi- 0.00 change in aread by stock merchig levels wherehig levels size that public. Formance rela- sistent with this a publicly owned officer (CEO) is a	
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Moral hazard and o	bservability	Performance Pay and Incentives	Top-Managemei	nt	
Bengt Holmström Swedish School of Economics and Business	Agency Problems and	Michael C. Jensen Harvard University	Journal of Financial Economics	1 (1976) 105-160 @ North-Holland	Publishing Company
The role of imperfect information to moral larger's considered. A nece information to improve an contract a characterization of the optimal us 1. Introduction 1. It has long been recognized that individuals engage in risk sharing t taken actions affect the probability of is common in insurance, labor contra- taking correct existents. Intraction, on some of the risk sharing benefits for 13,455	Eugene F. Fama University of Charge This paper attempts to explain form of economic organization form of economic organization form of economic organization and effect of the effect of the effect of the effect of the effect of the effect of the effect of the effect of the effect evolution of devices for effect entry and opportunities pro- vises, both within and outside Economists have long been on that arrise when decision making who are not the firm's security development of behavioral" a which reject the classical more 20,20,2000	University of Reckneter Our estimates of the pay-perf tions, stockholdings, and dism cate that CEO wealth change shareholder wealth. Althoug ownership are large relative t CEOs hold trivial fractions of t have declined over the past { and private political forces in phypothesis. The conflict of interest betweet orporation and the level of CEO pays hypothesis. The conflict of interest betweet orporation and the corporatic in a firm is the province of man holders. ¹ One outcome has beer in "managerial" theories of the del of an entrepreneur, or ow Citations	THEORY OF TR ACENCY COS Michael C. JE Uniterity of Received Jama This paper integrates demands for theory of fanace to develop at the native of the agency costs gene the native of the agency costs and the completences of marking of the completences of marking of the completences of marking or other project attention of the completences of marking or applet costs of the completences of marking of the completences of marking or other project attention of the completences of marking of the completences of the the completences of the completences of the the completences of the completences of the completences of the the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second o	AE FIRM: MANAGERIAL BI TS AND OWNERSHIP STRI INSEN and William H. MECK <i>Rochastr, Rochastr, NY 1407, U.</i> ury 1976, revised version received Jal on the theory of agency, the theory o beory of the ownership structure of restantion by the twee service and the one of the firm, and show how our as e of debt and equity claims is a speci roblem. In the ownership structure of the and the ownership structure of the firm, and show how our as e of debt and equity claims is a speci roblem. In the owner of a son of the firm, and the owner has an of for the re- linear of the firm, and the show of the theory of the sing the management (Newtor of Kasi, in the management (Newtor of Kasi, in the management (Newtor of Kasi, in the management) (Newtor of Kasi, in the management)	EHAVIOR, UCTURE LING* 3.4. 91076 Groppergraphs and the form. We define the orande quark, demonstration of the supply side conside quark, demonstration of a risk man, they are select, that they are starter at a case of the supply side the managers rather of the supply side of a risk man, they are of a risk man, they a

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The role of imperfect information to mend hazard is considered. A new information to improve on contracts a characterization of the optimal us 1. Introduction 1. Introduction 1. Introduction is common insurance, labore contra- individuals engage in risk sharing u taken actions affect the probability of is common in insurance, labore contra- sharing is generally precluded, beca- taking correct actions. Instead, only some of the risk-sharing benefits for 1.3.4.455		Kevin J. Murphy Driversity of Richards Conversity of Richards Conversity of Richards ownership are large relative to CDOs hold trivial fractions off and private political forces in performance sensitivity. Dedition ion and the level of CEO pays hypothesis. The conflict of interest betwee corporation and the corporation 10,795 accrraced with the incentive problem holders. ¹ One outcome has been end "managerical theories of the led of an entrepreneur, or own Citations	Journal of Financial Economics THEORY OF TI ACENCY COS Michael C. H Costory of Rectived Jour This proprint presents chemothy of concept of agency cost, show it concept of agency cost, show it the cost of agency cost, show it cost of agency cost of agency cost cost of agency cost of agency cost of agency cost cost of agency cost of agency cost of agency cost cost of agency cost of agency cost of agency cost of agency cost cost of agency cost of age	3 (1979) 303-300. © North-Holland I HE FIRM: MANAGERIAL BE TIS AND OWNERSTIP STUU NEED AND OWNERSTIP STUU NEED AND OWNERSTIP STUU NEED AND OWNERSTIP STUU (NEED AND OWNERSTIP STUU (NEED AND OWNERSTIP) (JS J MORENT AND OWNERSTIP (NEED AND OWNERSTIP) (JS J MORENT AND OWNERSTIP (NEED AND OWNERSTIP) (JS J MORENT AND OWNERSTIP) (In the Angel And Owner Study (JS J MORENT AND OWNERSTIP) (In the Angel And Owner Study (JS J MORENT AND OWNERSTIP) (JS J)	AdVIOR, CTURE CTURE INC*. 1976 1976 1976 Advisor of the second second second partners in a private or of the second second second partners in a private partner in a private part

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		Annual Review of Financial Ed	conomics	n-Holland Publishing Company
		Conflicts of Interes	st in Asset	
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1. Introduction		Chester S. Spatt		MECKLING* 14627. U.S.A.
It has long been rec individuals engage in r		Tepper School of Business, Carnegie Mellon University, email: cspatt@andrew.cmu.edu	Pittsburgh, Pennsylvania 15213, USA;	ceived July 1976
	Entend, out therefore the sense of the sense	tion and the level of CEO pay bypothesis. The conflict of interest betwee performance of the complete the conflict of interest betwee performance of the complete the conflict of interest betwee the conflict of interest bet	s this cours and why, and revenige the the a new definition of the firm, and there there is a new definition of the firm, and there there is a new definition of the definition of the second many the second second second or if with the same variance is a new to remarker attention to small matters as net for the there is a second second second second the allower of the second second second the second second second second second second second second the second second second second second second second the second second second second second second second second the second second second second second second second the second second second second second second second the second second second second second second second second the second second second second second second second second second second the second sec	theory of property right and the current of the first. We define the one and center? Hous, intestingate each and current proves, choose the start of the provident of the start of the start of the start of start of the start of the start of we highly the managers rather of which the grantes in a provide current provident of the start of which the grantes in a provide to their mater's bound, and very it, begingers and produces, there- magement of the affairs of such "Litrary, New York, 1937 p. 700.

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	A common thread	here is the <u>unobservabi</u>	lity of effo	rt.
	rd and observability			
	A ANNUAL REVIEWS			
	e e De			
		Chester S. Spatt Topper School of Business, Carnegie Mellon University, Punburgh, P email: equiv@undrew.ema.edu	ennsylvania 15213, USA;	
	Especially where the r	true in asset manageme nain input is human cap	nt, ital.	
	But for researc	chers, effort is now obse	rvable!	<u>(1977) (1977) (1978)</u>

20,200 Citations

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10 employees all worked 4 days this week.40 employee workdays.

Introduction 00000	Outcomes of Effort 000	Effort and Performance	Causation 00	Conclusion O
			DATE YOU NOT TODAY? CIECK- box not working hard. an not working hard. an not working all.	
10	omplovees all worke	d Most	omployees	

10 employees all worked4 days this week.40 employee workdays.

Most employees claimed they worked very hard this week.



We can tie EDGAR usage to mutual funds and observe their day-to-day activity of viewing (requesting) filings.



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We aggregate usage at the family-level each month and define *TotalWDs* and *TotalReqs*.

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Conclusion

To specifically measure effort, we focus on weekends. Relatively how many requests came on weekends?



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We define *PctWk* as the ratio of weekend work activities to total work activities over a month's time.

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		1	November - February
		Larg	ge and Expensive Funds
Effort leads to higher future returns	M c	lanagers facing many ompetitive incentives	
	Fol	lowing outflows and in- ed idiosyncratic volatility	
Es tive an	pecially for high ac share, low turnove d competitive fund	er, s	eper information acqui- ion and more trading.

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Introduction	Outcomes of Effort	Effort and Performance	Causation Conclusion
			November - February
			ge and Expensive Funds
	M c	lanagers facing many ompetitive incentives	
h	Effort <u>causes</u> igher future returns	Fol	lowing outflows and in- ed idiosyncratic volatility
Es tive an	specially for high ac- e share, low turnover nd competitive funds	r, Dee sit	eper information acqui- ion and more trading.
	iu competitive funds)

Introduction	Outcomes of Effort	Effort and Performance	Causation	Conclusion
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What follows from effort?

Introduction 00000	Outcon 0●0	Outcomes of Effort ○●○		Effort and Performance		Causation 00		Conclusion O	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)		
	Panel A: All	Observatio	ons.						
		Н	ні	Turn	over	Activ	veShare		
	$PctWk_{t-3}$	0.16** (0.07)		-0.29*** (0.10)		0.53 (0.88)			
	$PctWk_{t-12}$		0.18** (0.07)		-0.28** (0.11)		3.76*** (0.95)		
	N	23,713	20,865	25,492	20,990	25,564	21,059		
	R ²	0.53	0.53	0.27	0.27	0.66	0.65		

Introduction 00000		Outcomes of Effort ○●○		OOO		Cau 00	sation	Conclusion	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)		

Panel A: All Observations.

	HHI		Turne	over	ActiveShare		
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PctWk _{t-12}	, í	0.18**		-0.28**	. ,	3.76***	
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 $\uparrow \text{ Effort } \uparrow \text{ Concentration}$

Introduction 00000	Outcomes of Effort ○●○			Effort and Performance		Causation 00		Conclusion O
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
	Panel A: All	Observatio	ns.					
		Н	ні	Turn	over	Activ	eShare	
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	N R ²	23,713 0.53	20,865 0.53	25,492 0.27	20,990 0.27	25,564 0.66	21,059 0.65	

 \uparrow Effort \uparrow Concentration

 $\uparrow \text{ Effort } \downarrow \text{ Turnover}$

Introduction 00000	Outcomes of Effort ○●○			Effort and Performance		Causation 00		Conclusior O	
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 23,713
 20,865
 25,492
 20,990
 25,564

 0.53
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 0.27
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 0.66

 $\uparrow \textbf{ Effort} \uparrow \textbf{ Concentration}$

N R²

 \uparrow Effort \downarrow Turnover

↑ Effort ↑ ActiveShare

21,059

0.65



Introduction Outcomes of Ef		Outcomes of Effort ○○●	Effort 000	and Performance	Causation 00		Conclusion O	
	(1)	(2)	(3)	(4)	(5)	(6)		

Panel A: All Observations.

	%UniqueFirms	%UniqueFilings	%10KQ	FilingAge	PctNonHolding
PctWk	-0.32***	-0.47***	-0.09	1.32***	0.14
	(0.08)	(0.09)	(0.06)	(0.46)	(0.09)
N	4,563	4,563	4,563	4,563	4,563
R²	0.44	0.30	0.45	0.29	0.55

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 \uparrow Effort \rightarrow acquiring info about fewer firms, fewer filings, and older filings.

Introduction Outcomes of Effort		Effort 000	and Performance	Causation 00		Conclusion O	
	(1)	(2)	(3)	(4)	(5)	(6)	

Panel A: All Observations.

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 \uparrow Effort \rightarrow acquiring info about fewer firms, fewer filings, and older filings.

We also show that effort decreases the likelihood of buying new stocks while increasing the likelihood of buying more of current holdings. Effort and Information Acquisition together increase the likelihood of selling.

Does effort lead to better performance?

Introdu 00000	ction	Outcomes 000	of Effort	Effort and Pe ○●○	rformance	Causation 00	Conclusion O
	(1) Panel A.	(5) All Observat	(6) ions.	(7)			
		$Alpha_{\mathbf{1-6}}$	Alpha ₇₋₁₂	Alpha _{13–18}			
	PctWk	-1.25* (0.68)	-0.78 (0.61)	2.05*** (0.69)			
	N R ²	25,257 0.13	25,357 0.12	25,513 0.12			
					•		

Panel B. Observations where PctWk > 0.

	$Alpha_{\mathbf{1-6}}$	$Alpha_{\mathbf{7-12}}$	Alpha _{13–18}
PctWk	-1.00	-1.52**	1.69**
	(0.78)	(0.73)	(0.79)
N	21,137	21,125	21,185
R ²	0.13	0.13	0.13

Panel C. Observations where MedWk > 1.

	$Alpha_{\mathbf{1-6}}$	Alpha ₇₋₁₂	Alpha _{13–18}
PctWk	-1.74**	-1.01	1.70**
	(0.77)	(0.77)	(0.73)
N	19,561	19,614	19,675
R ²	0.13	0.12	0.13

Introdu 00000	ction	Outcomes 000	of Effort	Effort and Per 0€0	rformance	Causation 00	Conclusio 0
	(1) Panel A	(5) . All Observat	(6) ions.	(7)			
		$Alpha_{\mathbf{1-6}}$	Alpha ₇₋₁₂	Alpha _{13–18}			
	PctWk	-1.25* (0.68)	-0.78 (0.61)	2.05*** (0.69)		Returns are LOW im-	
	N R ²	25,257 0.13	25,357 0.12	25,513 0.12			

Panel B. Observations where PctWk > 0.

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Introdu 00000	ction	Outcomes 000	of Effort	Effort and Pe 0€0	erformance	Causation 00	Conclusion O
	(1) Panel A	(5) . All Observat	(6) ions.	(7)	-		
		$Alpha_{\mathbf{1-6}}$	Alpha ₇₋₁₂	Alpha ₁₃₋₁₈	-		
	PctWk	-1.25* (0.68)	-0.78 (0.61)	2.05*** (0.69)		Returns are LOW im- mediately after effort	
	N R²	25,257 0.13	25,357 0.12	25,513 0.12			

Panel B. Observations where PctWk > 0.

	$Alpha_{\mathbf{1-6}}$	$Alpha_{7-12}$	Alpha ₁₃₋₁₈
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Returns are HIGH after a while

Introdu 00000	ction	Outcomes 000	of Effort	Effort and Pe ○●○	erformance	Causation 00	Conclusion O
	(1) Panel A	(5) . All Observat	(6) ions.	(7)	-		
		Alpha ₁₋₆	Alpha ₇₋₁₂	Alpha ₁₃₋₁₈	-		
	PctWk	-1.25* (0.68)	-0.78 (0.61)	2.05*** (0.69)		Returns are LOW im- mediately after effort	
	N R ²	25,257 0.13	25,357 0.12	25,513 0.12			

Panel B. Observations where PctWk > 0.

	$Alpha_{\mathbf{1-6}}$	$Alpha_{\mathbf{7-12}}$	Alpha ₁₃₋₁₈
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Returns are HIGH after a while

I allel C. Observations where weaving 21.	Panel	С.	Observations	where	MedWk	>	1.
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	$Alpha_{\mathbf{1-6}}$	Alpha _{7–12}	Alpha _{13–18}
PctWk	-1.74**	-1.01	1.70**
	(0.77)	(0.77)	(0.73)
N	19,561	19,614	19,675
R ²	0.13	0.12	0.13







Panel B: Sample Split by E-Score.					
	$E\text{-}Score \leq 2$	E-Score = 3	$E\operatorname{-}Score=4$	$E\text{-}Score \geq 5$	
	Alpha	Alpha	Alpha	Alpha	
PctWk	-1.19 (0.91)	-0.44 (0.97)	3.51*** (1.35)	6.06*** (1.23)	
N R²	6,337 0.20	6,203 0.17	5,182 0.13	7,785 0.12	



The relation between effort and future returns is strongest for small, expensive funds with high concentration and active share, low turnover, and highly competitive incentives.



The relation between effort and future returns is strongest for small, expensive funds with high concentration and active share, low turnover, and highly competitive incentives.

Stocks they buy and sell during during periods of high effort (especially those they acquire information about) outperform their portfolio and benchmark.

The concern is reverse causality (Pastor, Stambaugh, and Taylor (2017)).

"Mutual funds trade more when they foresee more profitable future opportunities."

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We need exogenous variation in effort, and we look to the costs of effort.

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Costly Effort

The concern is reverse causality (Pastor, Stambaugh, and Taylor (2017)).

"Mutual funds trade more when they foresee more profitable future opportunities."

We need exogenous variation in effort, and we look to the costs of effort.







Introduction 00000	Outcomes of Effort		Effort and Performance		ce	Causation ○●	Conclusio O
	(1)	(2)	(7)	(8)	(9)	(10)	
		First Stage		Secon	d Stage		
		All Obs.		E-Sco	$re \ge 4$		
	-	PctWkF	Alpha	CAPM	FF3	FF4	
	PctŴkF		56.94*** (15.63)	16.79*** (2.68)	13.12*** (3.08)	18.41*** (3.04)	
	Rain	0.03** (0.01)	()	()	(0.00)	()	
	N R ²	12,349 0.77	5,764 0.15	5,670 0.21	5,670 0.17	4,841 0.16	

For the funds that benefit from extra effort, more rain-induced effort results in higher returns in the future.

Introduction 00000	Outcomes of Effort	Effort and Pe	rformance	Causation 00	Conclusion •
			Nove	ember - Febru	ary
			Large a	nd Expensive	Funds
		Fo creat	Mana comp	agers facing m Detitive incent	iany ives
hig	Effort <u>causes</u> her future returns		Followi creased i	ng outflows a diosyncratic v	nd in- olatility
Esp tive and	pecially for high ac- share, low turnove l competitive funds	r,	Deeper sition	r information and more trac	acqui- ding.