

Bargaining over Remedies in Merger Regulation

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Ryanair/AerLingus

- Notified to DG Comp
- Remedies proposed
- Referred to Phase II
- New remedies proposed
- Final decision deadline
- 30th October 2006
- 29th November 2006
- 20th December 2006
- April 2007?
- 11th May 2007

Merger regulation under the ECMR (similar in other major authorities)

- Regulation to preserve *ex ante* competition
 - Dominance test → SIEC test (= consumer welfare)
- Number of regulated mergers
 - 3196 qualified (1990 to Nov 2006)
 - Only 19 prohibited
- Why so few?
 - High standard of proof; cautious DG Comp?
 - Many mergers have no competition implications
 - Deterrent effect
 - No obviously anti-competitive proposals
 - Negotiated remedies
 - i.e. modify merger to eliminate anti-competitive effects

Remedy negotiation under ECMR

- Remedies can be offered and accepted in Phase I and/or Phase II
 - Extra time to appraise offers
- Of the 3125 Phase I merger cases
 - 4.4% remedied in Phase I (=139 cases)
 - 5.0% referred to Phase II
 - 2.4% withdrawn
- Of the 155 Phase II merger cases
 - 50.3% remedied (=78 cases)
 - 12.3% prohibited
 - 17.4% withdrawn ('quit option')

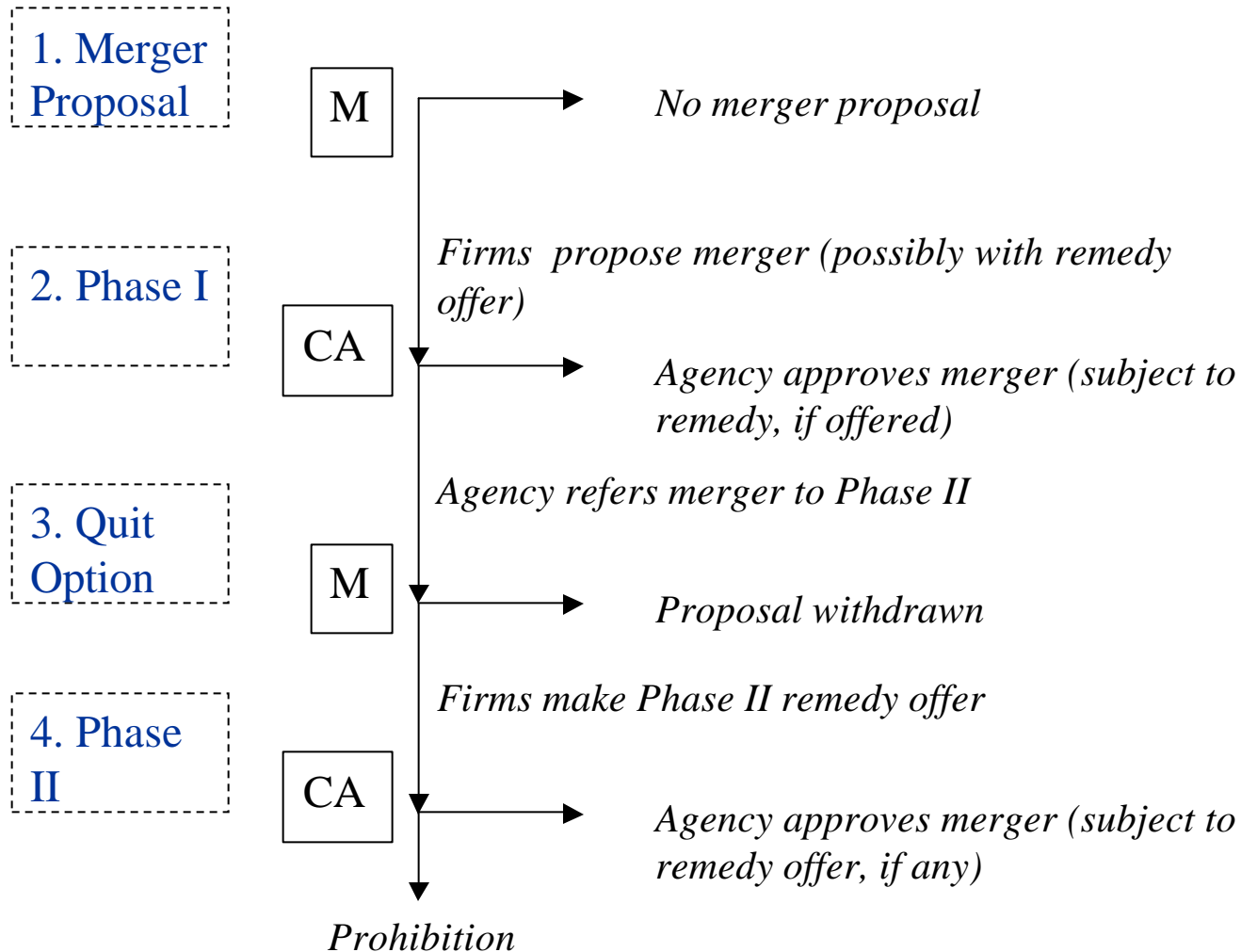
Asymmetric information in remedy negotiation

- Firms initially know more about competitive effects of a merger than agency knows
- Firms do not have the incentives to reveal the truth
- Agency's information gathering depends on available resources
 - Phase II allows the agency to learn more information than is possible in Phase I
- Agency's resources are largely exogenous to individual mergers

Questions we ask about the remedy negotiation process

- How does a 2-phase inquiry structure affect negotiations?
- How efficient is the process at revealing the truth?
- What types of error are more likely and when?
- Do merging firms get information rent in remedy negotiation?
- Should firms prefer a more or less well resourced agency?

The model: sequence of decision making



Characterisation of remedies

Example: Ryanair – Aer Lingus

*Routes unlikely to
impair competition*

*Routes most likely to
impair competition*

Inter-continental
routes

European
routes

Domestic
Irish routes

$a = 0$

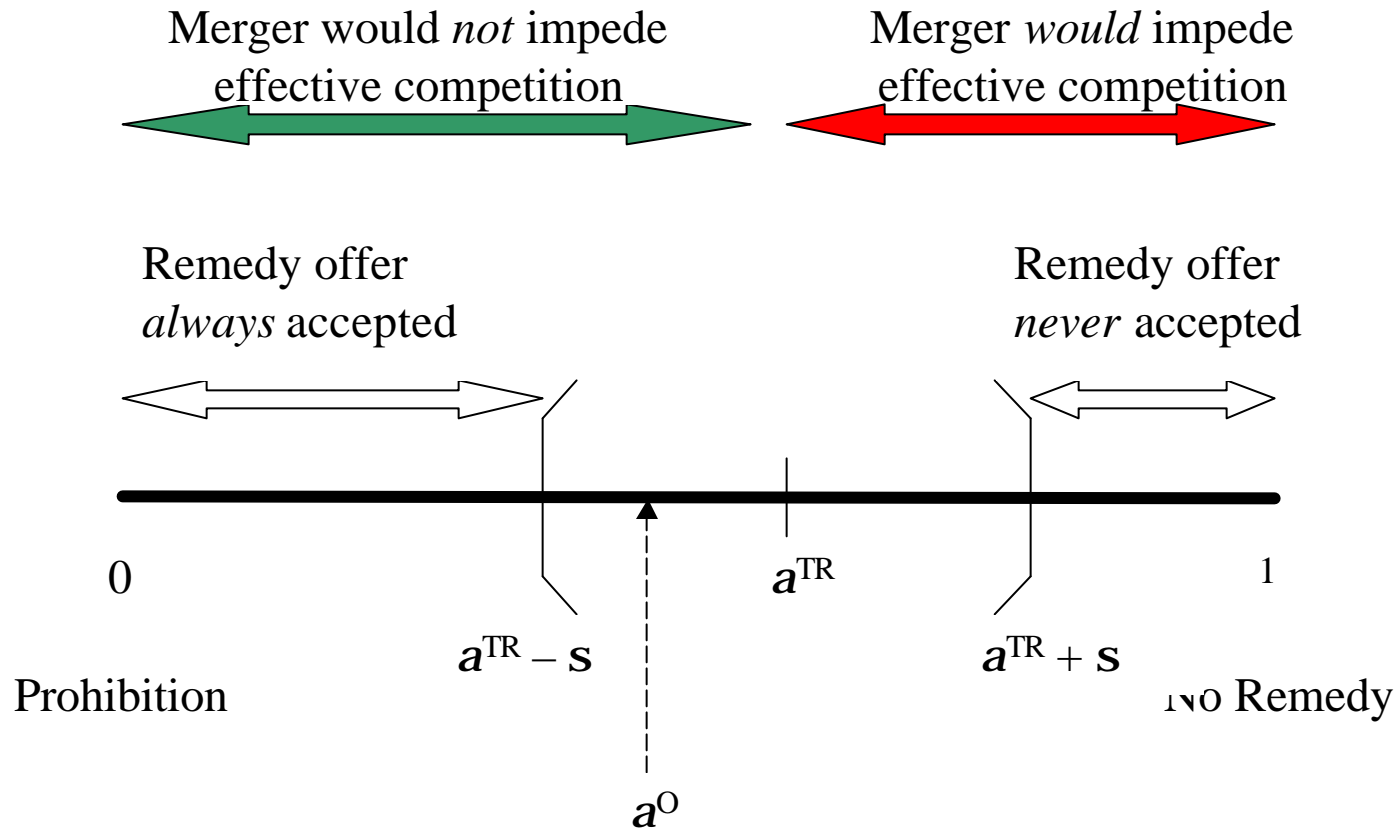
*Divest all
routes*

$a = 1$

*Divest no
routes*

a is the proportion of merged assets that are retained

The model: characterisation of remedies



The model: information and approval rule

- Phase I provides agency with an unbiased signal, x , of the true remedy, a^{TR}
 - Drawn from uniform distribution with range: $[a^{\text{TR}} - s, a^{\text{TR}} + s]$
 - Support falls entirely within $[0, 1]$
 - s decreases with resources available to agency
- Agency discovers full truth after Phase II
 - Generalises to $s_1 > s_2 \geq 0$
- Agency approval rule
 - Approve remedy offer *iff* $a^0 \leq x$

The model: firms' objective

Choose remedy offers to maximise expected profit:

$$\text{Max}_{a^o, a^{oo}} \left\{ \Pr(\text{Phase I App.}) a^o \mathbf{p} + [1 - \Pr(\text{Phase I App.})] \left[\Pr(\text{Phase II App.}) a^{oo} \mathbf{p} - K_F \right] \right\}$$

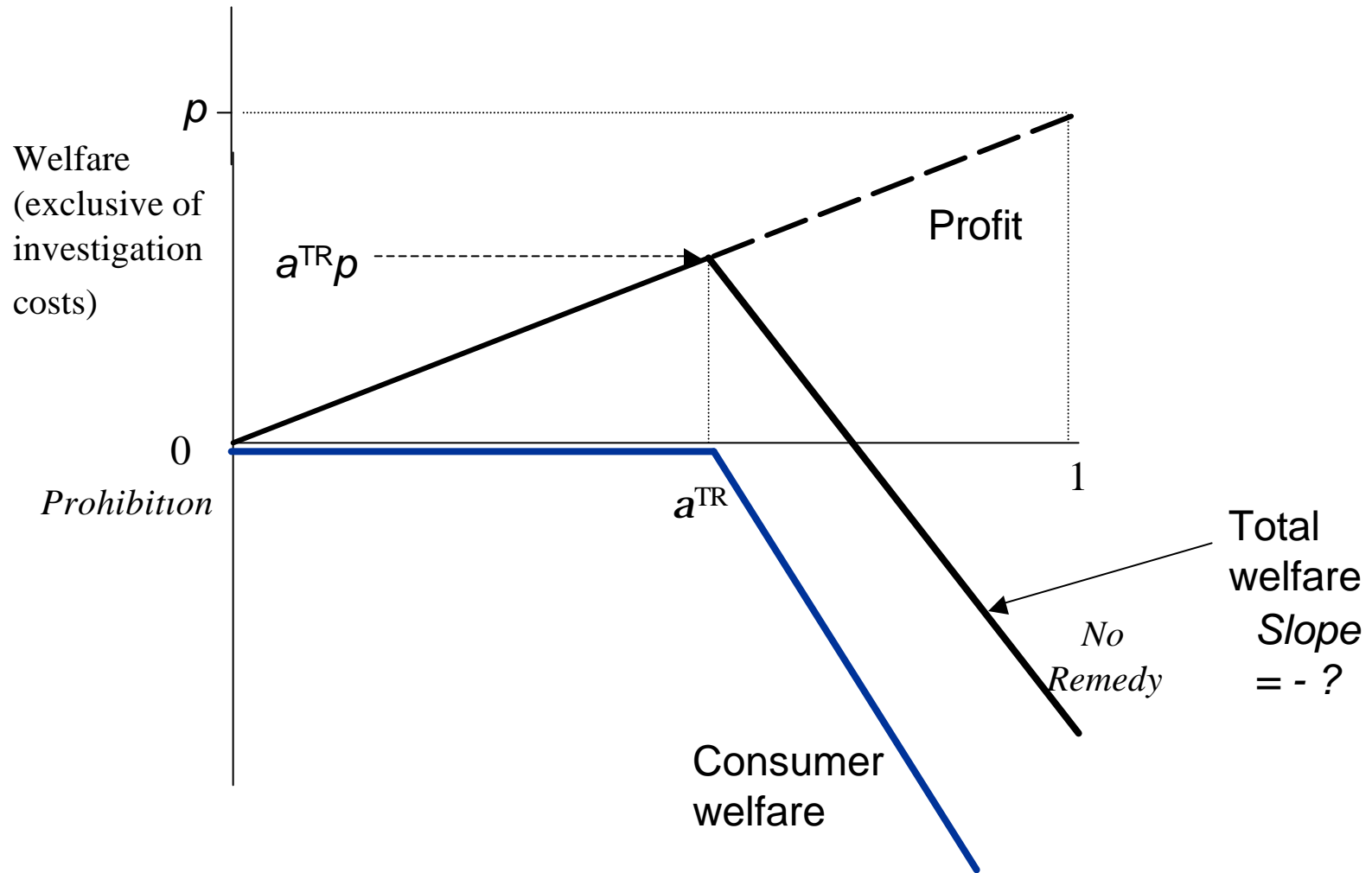
a^o = Firms' remedy offer in Phase I

a^{oo} = Firms' remedy offer in Phase II

The model: agency objective and errors

- Agency objective of no SIEC
 1. No consumer harm
 2. Subject to 1, allow firms to maximise profits
- Broader social objective may be different from delegated objective given to agency
 - Total welfare (inc. profits)
 - Agency investigation costs
 - Firms' compliance costs
- Errors
 - Type 1 = excessive remedy
 - Type 1D = prohibition or quit option
 - Despite potentially beneficial merger
 - Type 2 = insufficient remedy
 - Type 3 = Phase II investigation costs
 - Incurred due to bargaining failure in Phase I

Welfare effects of alternative remedies



Errors and welfare losses

(excluding Phase I investigation costs)

\ <i>Firms' offer</i> <i>Agency decision</i> \	$a^O < a^{TR}$	$a^O > a^{TR}$
<i>Approve</i>	$[a^{TR} - a^O] p$ <i>Type 1</i>	$[a^O - a^{TR}] ?$ <i>Type 2</i>
<i>Prohibit (or firms abandon merger)</i>	$a^{TR} p$ <i>Type 1D</i>	$a^{TR} p$ <i>Type 1D</i>
<i>Enter Phase II</i>	K <i>Type 3</i>	K <i>Type 3</i>

Some terminology

■ Errors

- Potential harm of merger $= 1 - a^{\text{TR}}$
- Size of remedy offer $= 1 - a^{\text{O}}$
- Excessive (deficient) remedy $= a^{\text{TR}} - a^{\text{O}} > 0 (< 0)$
- Probability of prohibition $= \text{Prob. of failure to agree}$

■ Investigation costs

- Inaccuracy of investigation $= s$
- Relative inaccuracy of Phase I investigation $= s / a^{\text{TR}}$
- Relative cost of Phase II to the firms $= K_F / a^{\text{TR}}p$
- Firms' costs relative to agency's inaccuracy $= K_F / sp$
 $= (K_F / a^{\text{TR}}p) / (s / a^{\text{TR}})$

Case 1: Single Phase Investigation

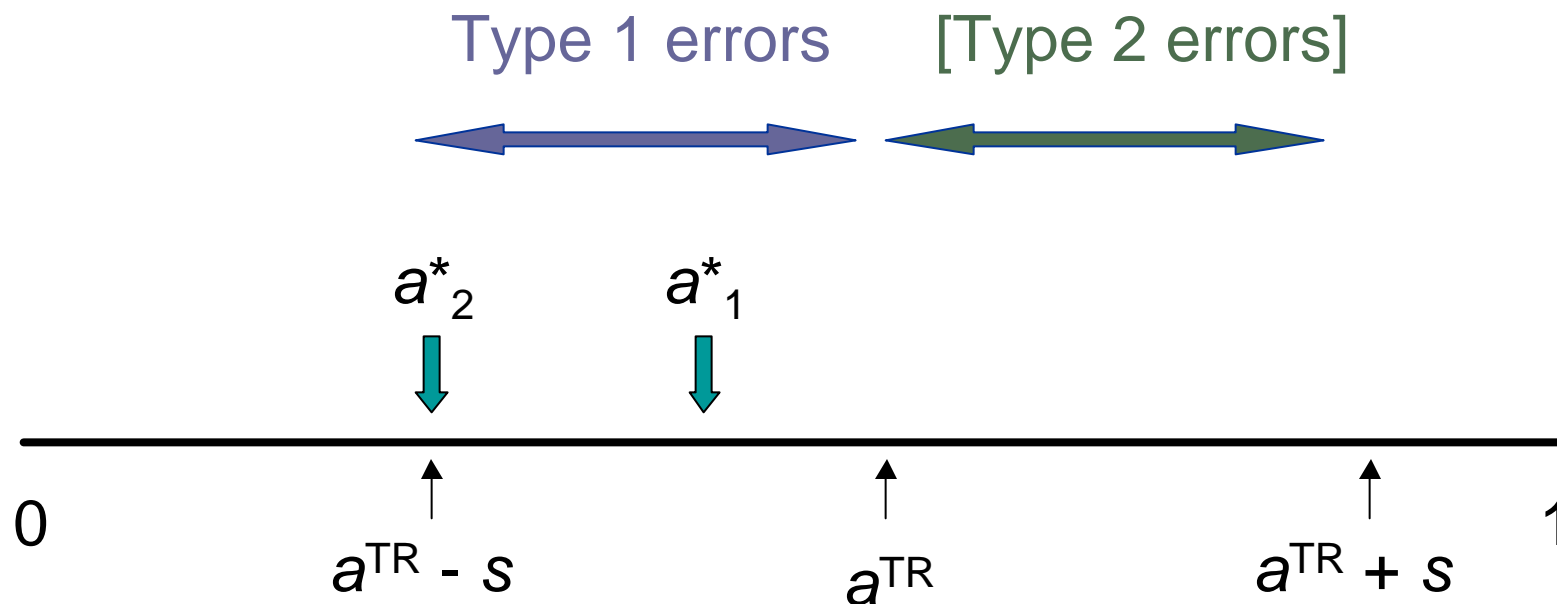
- Firms' objective:

$$\text{Max}_{a^o} \{ \text{Pr}(\text{Phase I Approval}) \mathbf{a}^o \mathbf{p} \}$$

- Optimal offer:

- $a^* = a^{\text{TR}} - s$ if agency is relatively accurate
- $a^* = [a^{\text{TR}} + s]/2$ if agency is relatively inaccurate

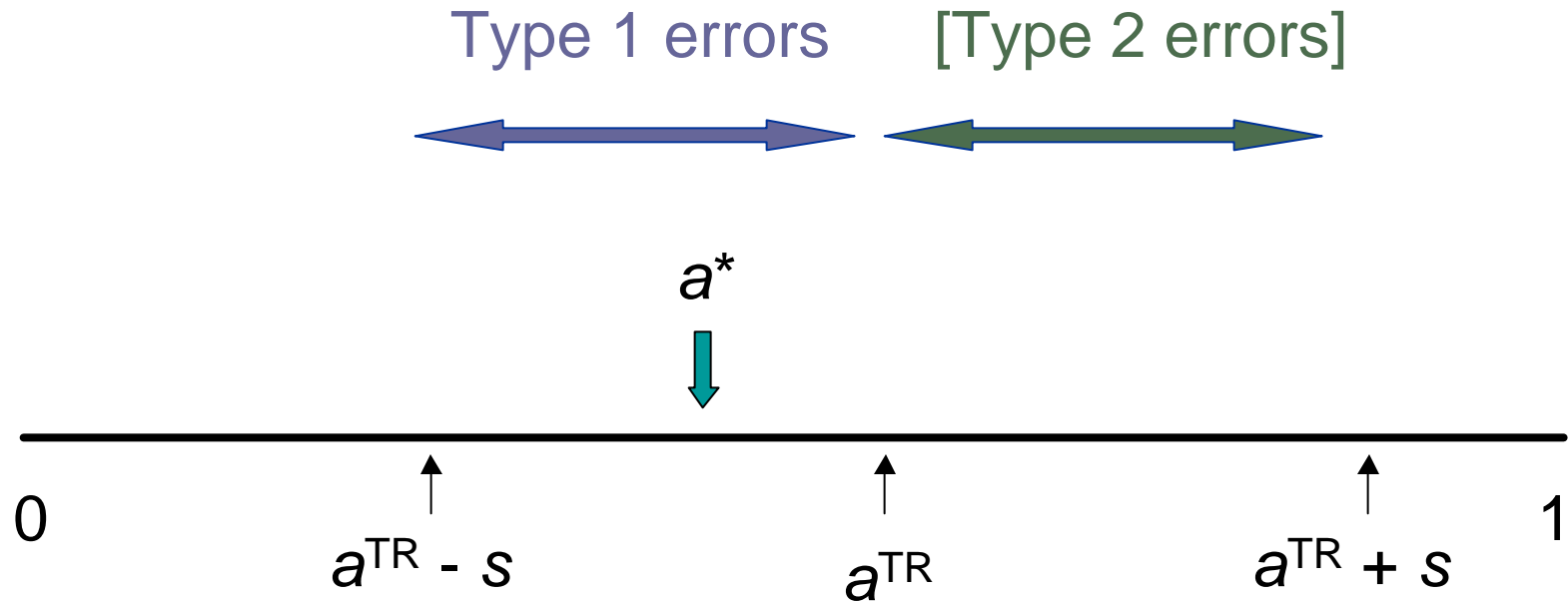
Phase I offer depends on s / a^{TR}



s / a^{TR} (relative inaccuracy):

1. High
2. Low

Phase I offer depends on s / a^{TR}

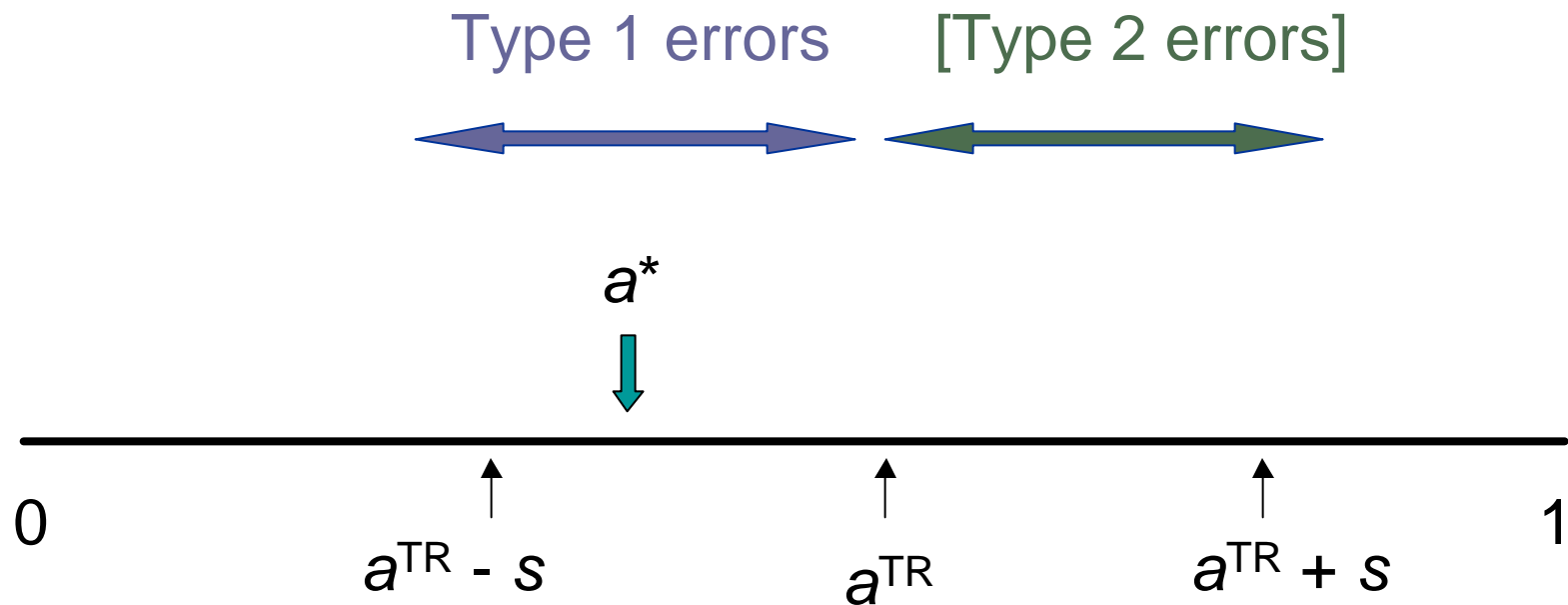


s / a^{TR} (relative inaccuracy):

1. High

2. Low

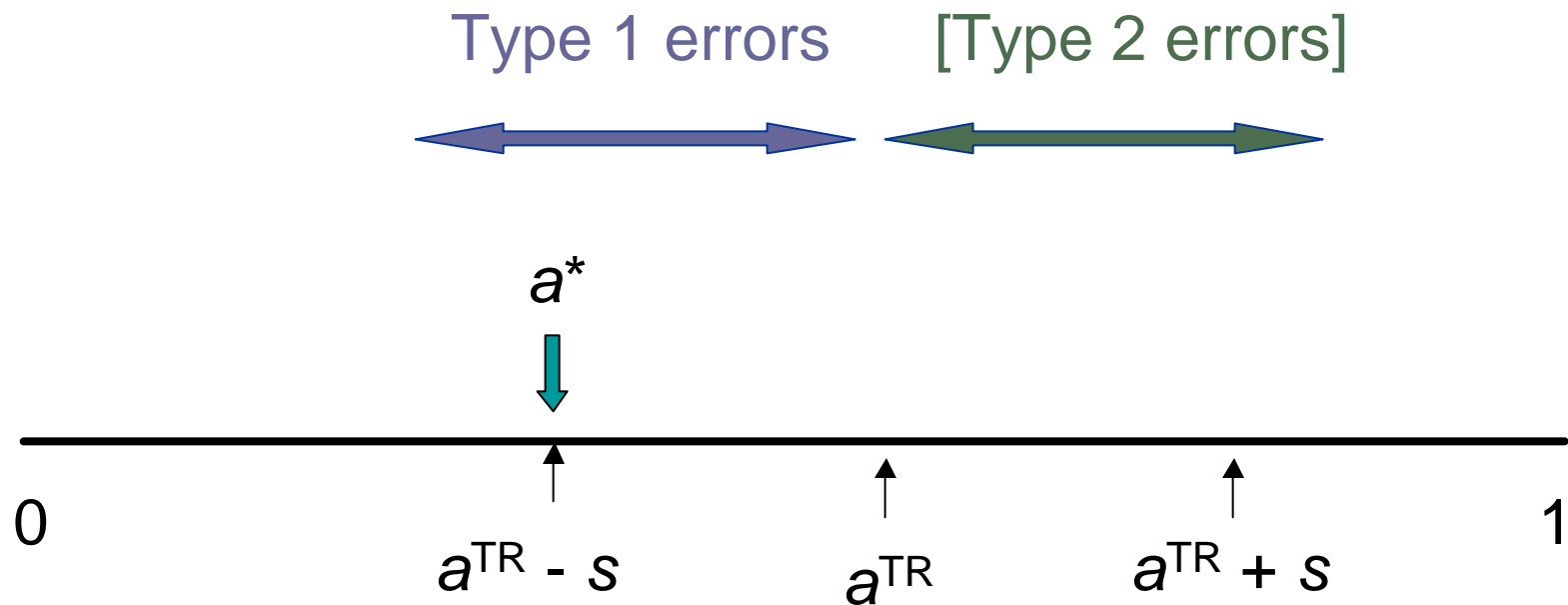
Phase I offer depends on s / a^{TR}



s / a^{TR} (relative inaccuracy):

1. High
2. Low

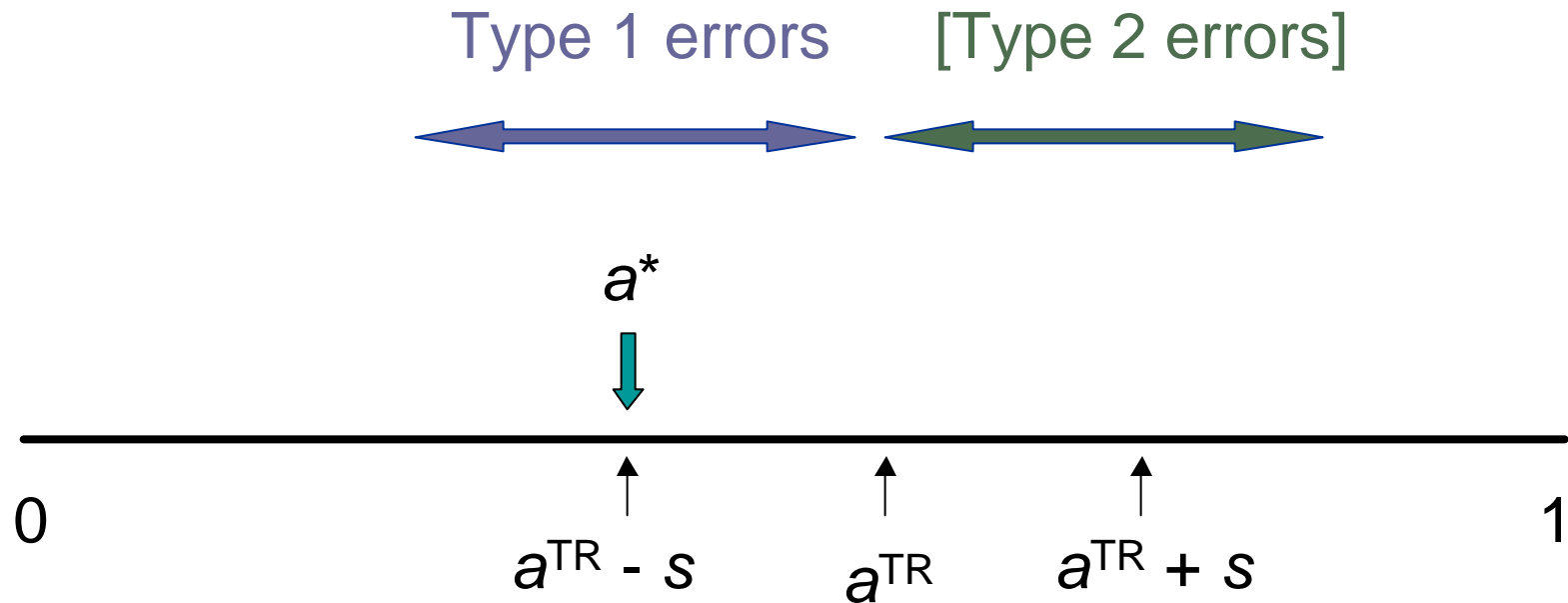
Phase I offer depends on s / a^{TR}



s / a^{TR} (relative inaccuracy):

1. High
2. **Low**

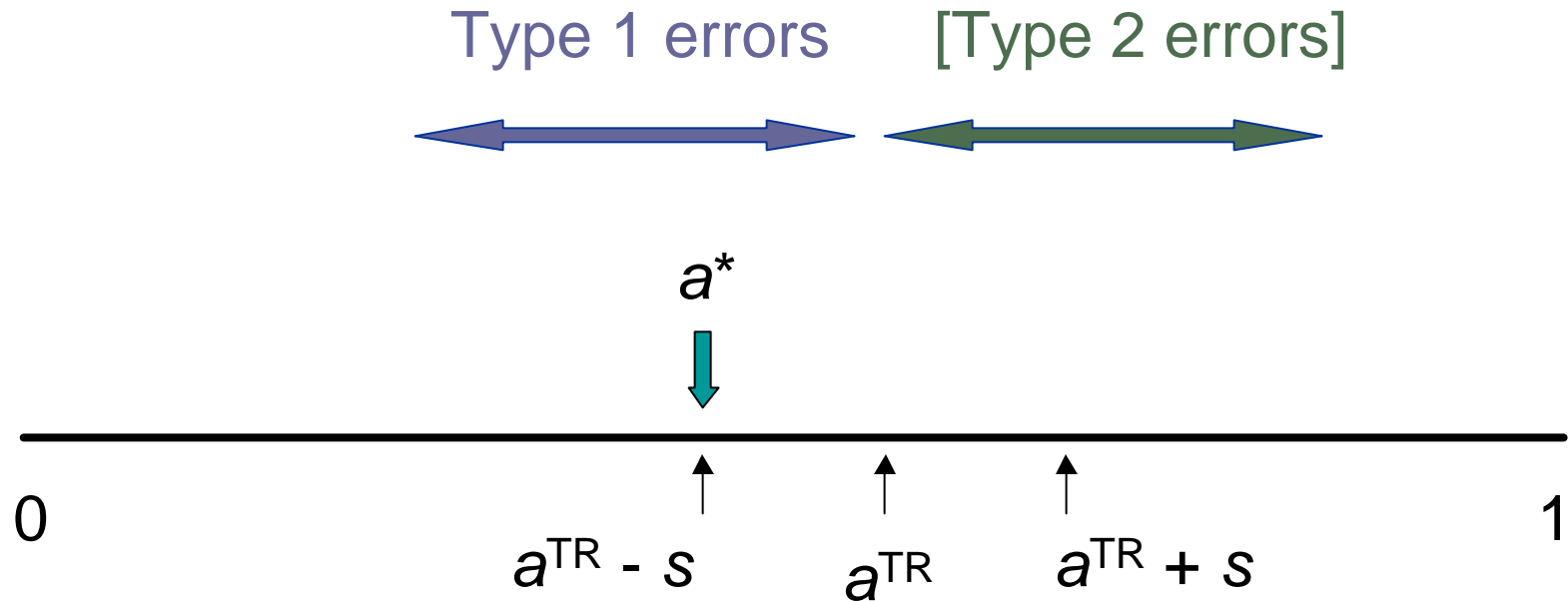
Phase I offer depends on s / a^{TR}



s / a^{TR} (relative inaccuracy):

1. High
2. **Low**

Phase I offer depends on s / a^{TR}



s / a^{TR} (relative inaccuracy):

1. High

2. Low

Propositions 1&2: Single Phase Investigation

Define relatively accurate investigation as: $s / a^{TR} < ?$

- a) Optimal offer is always excessive (Type I error)
 - If relatively (in)accurate investigation, excess of offer is (in)decreasing in accuracy

- b) Probability of prohibition (Type 1D error) is
 - Zero, if agency is relatively accurate
 - Non-zero & decreasing in accuracy, if relatively inaccurate

- c) Increased resourcing of the agency (= lower s)
 - Reduces expected cost of errors
 - Even though incremental error may be raised
 - Raises expected profit

Observations on Proposition 1

- Excessive offers by firms do *not* result from risk aversion
 - The bias is created by drastic error if failure to agree
- Case 1 applies also to 2-phase investigations if second phase would be prohibitively expensive

Case 2: Two-Phase Investigation

- Firms' objective:

$$\text{Max}_{a^o} \left\{ \Pr(\text{Phase I App.}) \mathbf{a}^o \mathbf{p} + [1 - \Pr(\text{Phase I App.})] [\mathbf{a}^{TR} \mathbf{p} - K_F] \right\}$$

- Optimal Phase I offer:

- $a^* = a^{TR} - s$

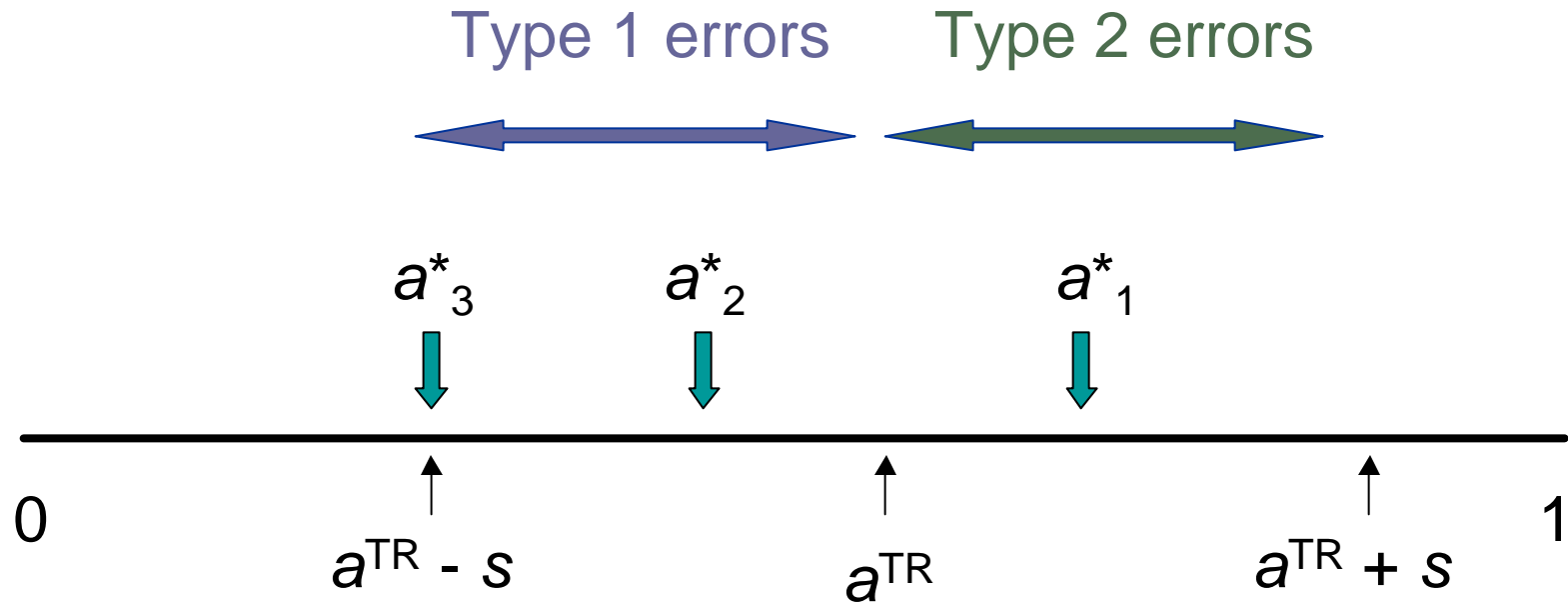
if firms' costs are high
relative to agency inaccuracy

- $a^* = a^{TR} + [s - K_F/p] / 2$

if firms' costs are low
relative to agency inaccuracy

Phase I offer depends on K_F/ps

(firms' costs relative to agency's inaccuracy)

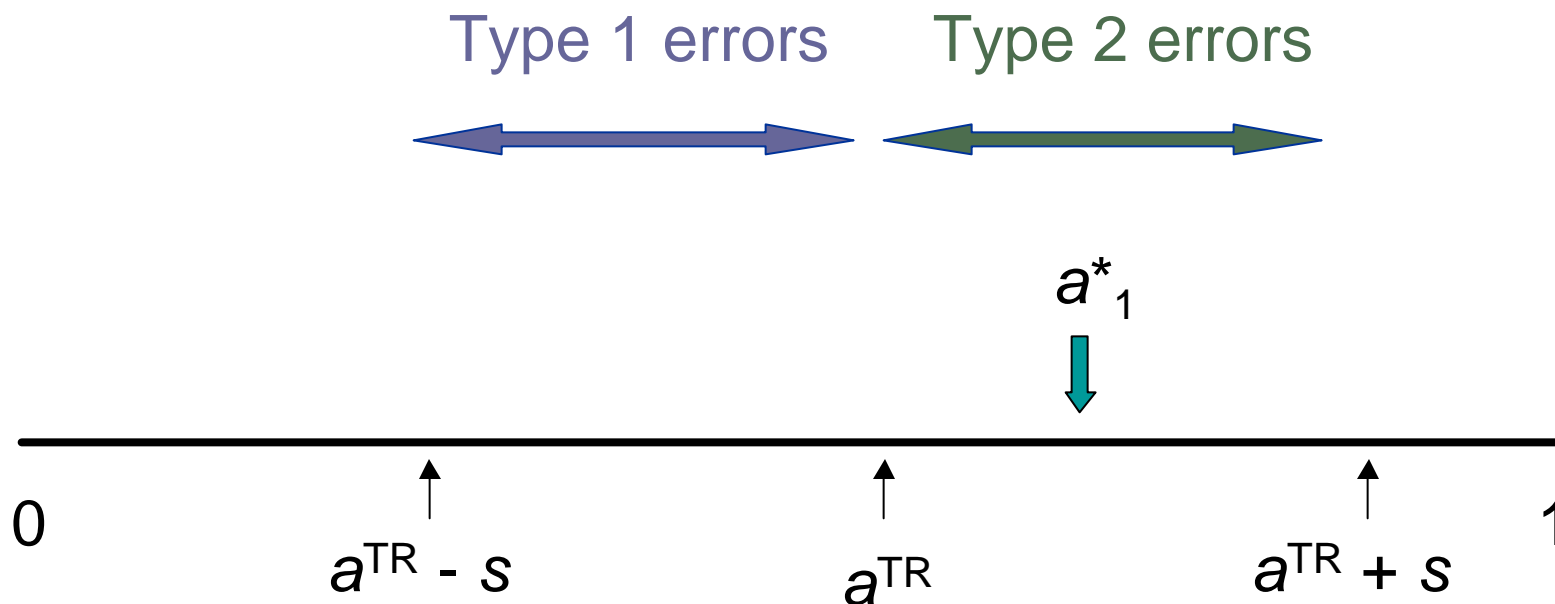


K_F/ps :

1. Low
2. Medium
3. High

Effect of raising K_F/p

(firms' costs relative to agency's inaccuracy)

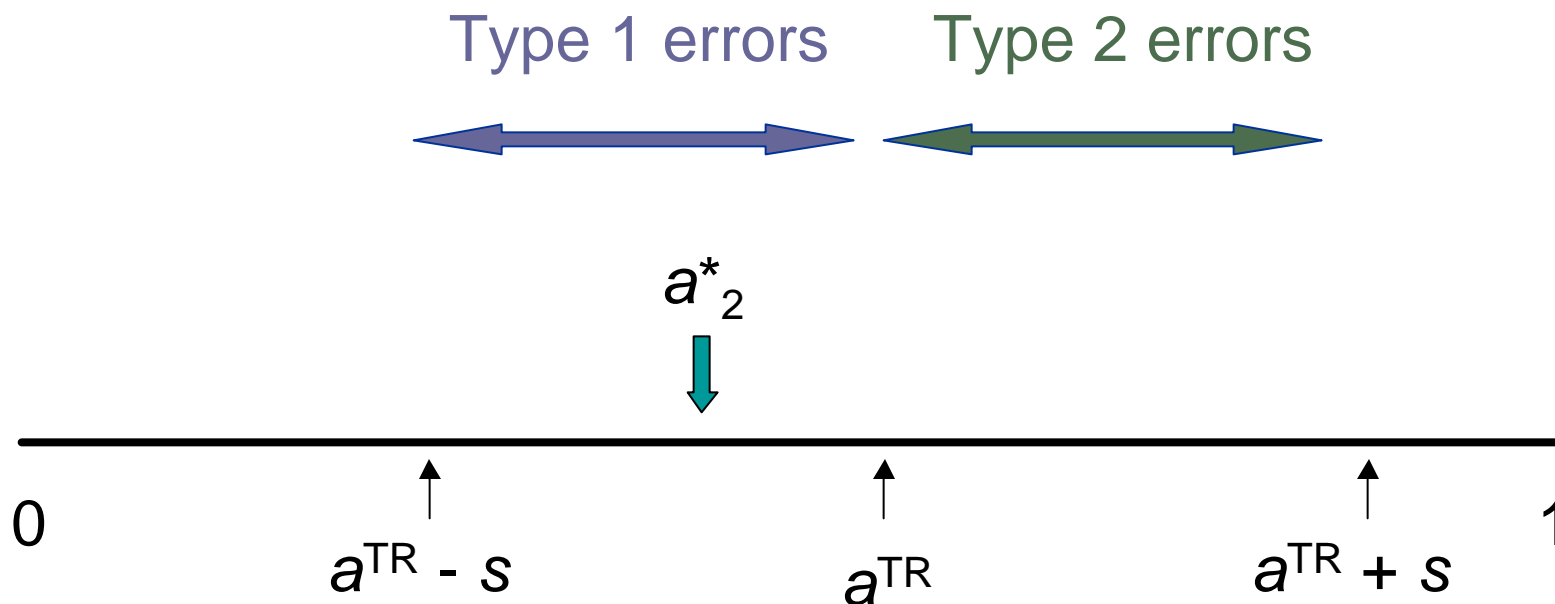


K_F/p s:

1. Low
2. Medium
3. High

Effect of raising K_F/p

(firms' costs relative to agency's inaccuracy)



K_F/p s:

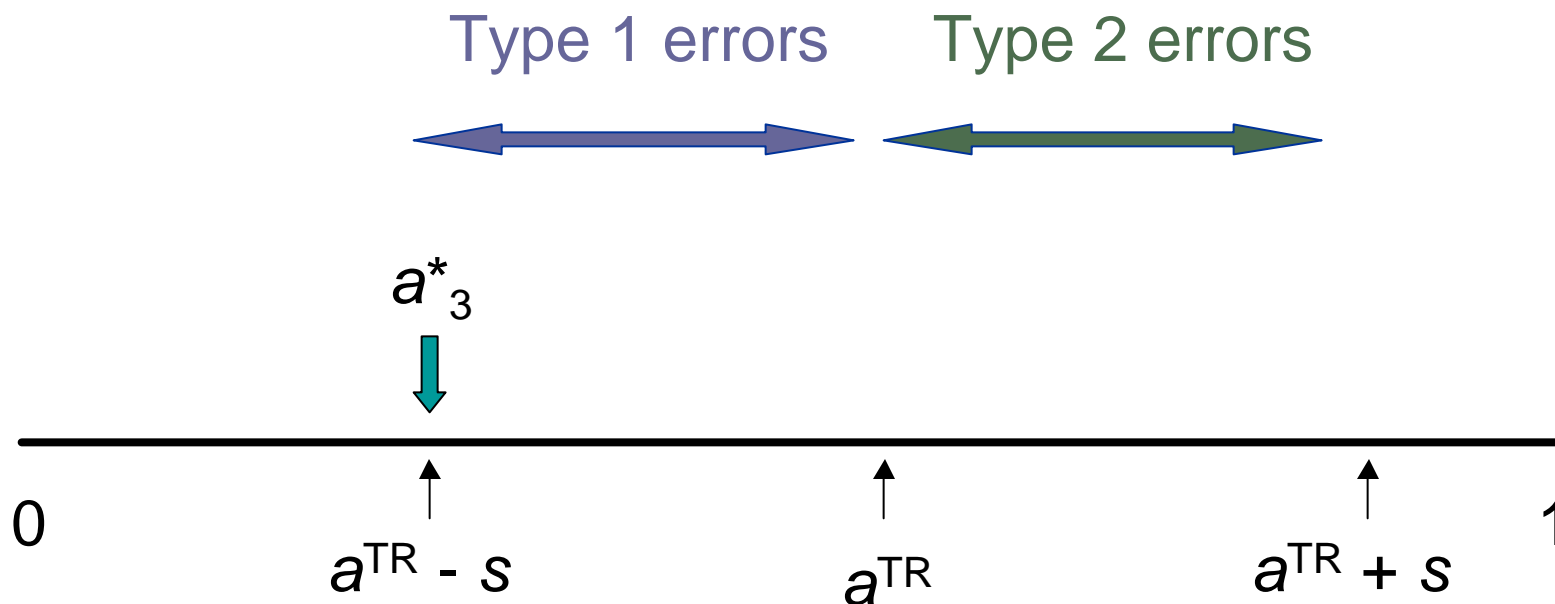
1. Low

2. Medium

3. High

Effect of raising K_F/p

(firms' costs relative to agency's inaccuracy)



K_F/p_s :

1. Low
2. Medium
- 3. High**

Propositions 3&4: Two-Phase Investigation

Define firms' costs relative to agency inaccuracy: K_F/ps

- a) Optimal offer may be either excessive (= Type I) or deficient (= Type II error)
 - Deficient if 'low' relative costs: $K_F/ps < 1$
- b) Probability of Phase II is strictly positive
 - Unless 'high' relative costs: $3 < K_F/ps$
- c) Increased Phase I resourcing leads to
 - Lower welfare costs of error for 'low' and 'high' and for 'intermediate' ($1 < K_F/ps < 3$) where $K_F < K$
 - Higher welfare costs for 'intermediate' relative costs ($1 < K_F/ps < 3$) where $K < 5/9 K_F$
 - Higher profits *except* for 'low' relative costs : $K_F/ps < 1$

Compliance costs, agency accuracy, Type 2 errors and the risk of Phase II

- Going to Phase II has little to do with how harmful a merger might be
 - Depends on incentive for firms to risk a high a^0
- Big mergers (low K_F/p) have relatively low Phase II compliance costs
 - More likely to risk high a^0 to try to bluff agency
- Inaccurate/low resourced agencies (high s) create the incentive for firms to bluff
 - Similar for complex mergers

Questions we have asked about the remedy negotiation process

- How does a 2-phase inquiry structure affect negotiations?
- How efficient is the process at revealing the truth?
- What types of error are more likely and when?
- Do merging firms get information rent in remedy negotiation?
- Should firms prefer a more or less well resourced agency?