

Chapter 15.2

Remuneration of traders

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Traders as employees

Traders as employees

- ▶ Investment banks' trading desks **employ** traders

Traders as employees

- ▶ Investment banks' trading desks employ traders, who require **remuneration**

Traders as employees

- ▶ Investment banks' trading desks employ traders, who require remuneration
- ▶ Traders can be informed **or** uninformed

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Trader types

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Price setting

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$$\lambda = \frac{\text{Cov}[\Delta V, D]}{\text{Var}[D]}$$

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Trader profits

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- ▶ A trader not employed by an investment bank can trade **independently**

Trader profits

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Optimal demand

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Demand for employed traders

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Total demand

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Equilibrium pricing

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- ▶ This gives $Cov [\Delta V, D] = \frac{\sigma_V^2 (1+\gamma f)}{2(1+f)\lambda}$ and $Var [D] = \frac{\sigma_V^2 (1+\gamma f)^2}{4(1+f)^2 \lambda^2} + \frac{(1-\gamma)^2}{4\lambda^2} + \sigma_U^2$

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Investment bank profits

Investment bank profits

- ▶ Trading profits are from the profits of informed traders
- ▶ $\Pi = \gamma E [(\Delta V - \Delta P) Q_I | \Delta V]$

Investment bank profits

- ▶ Trading profits are from the profits of **informed traders** and losses of **uniformed traders**
- ▶ $\Pi = \gamma E [(\Delta V - \Delta P) Q_I | \Delta V] + (1 - \gamma) E [(\Delta V - \Delta P) Q_U]$

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- ▶ For reasonably low trading costs f , this threshold is **very high**

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Total demand

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- ▶ Informed traders will receive a schedule that induces them to **join** the investment bank

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- ▶ Total demand is from the **informed traders employed** by the investment bank, **informed traders not employed**
- ▶ $D = \gamma Q_I + (1 - \gamma) \hat{Q}_I$

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Trading profits

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Investment bank profits

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Investment bank profits

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- ▶ Profits: $\hat{\Pi}_B = E[\Pi]$

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- ▶ Investment banks obtain **trading profits**, pay the **wages** to **informed traders** only
- ▶ Profits: $\hat{\Pi}_B = E[\Pi] - \gamma w$

Investment bank profits

- ▶ Performance needs to be evaluated, this costs investment banks C
- ▶ Investment banks obtain **trading profits**, pay the **wages** to **informed traders** only, and face costs of **evaluating trader performance**
- ▶ Profits: $\hat{\Pi}_B = E[\Pi] - \gamma w - C$

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- ▶ Profits: $\hat{\Pi}_B = E[\Pi] - \gamma w - C$
- ▶ Investment banks will only operate a trading desk if $\hat{\Pi}_B \geq 0$
- ▶ This requires $\sigma_U \sigma_V \geq \frac{2C}{\gamma f} \sqrt{(1 + \gamma f)(2(1 + f) - (1 + \gamma f))}$

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- ▶ Investment banks obtain trading profits, pay the wages to informed traders only, and face costs of evaluating trader performance
- ▶ Profits: $\hat{\Pi}_B = E[\Pi] - \gamma w - C$
- ▶ Investment banks will only operate a trading desk if $\hat{\Pi}_B \geq 0$
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■ Problem and model assumptions

■ Independent traders

■ Fixed wages

■ Performance wages

■ Optimal trader remuneration

■ Summary

Problem and assumptions
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Independent traders
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Fixed wages
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Performance wages
oooo

Optimal remuneration
oo•oo

Summary
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Performance and fixed wages

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Problem and assumptions
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Independent traders
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Fixed wages
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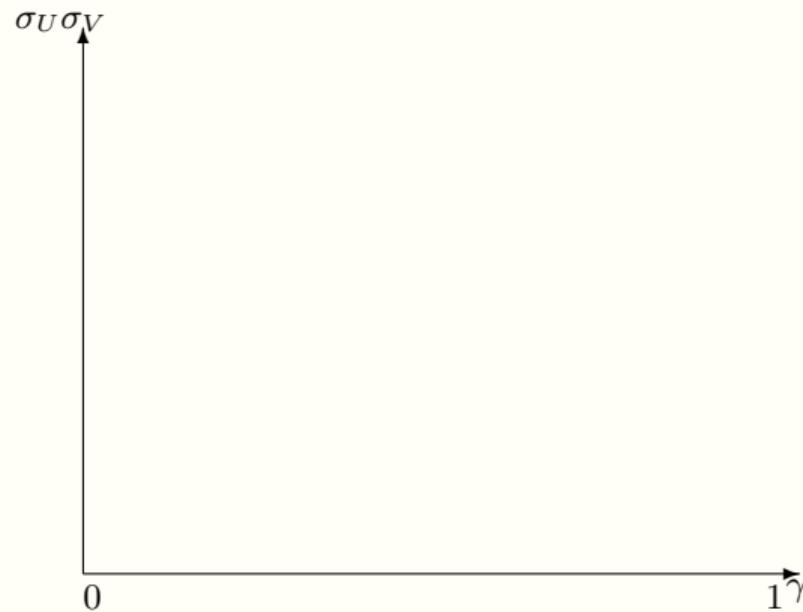
Performance wages
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Optimal remuneration
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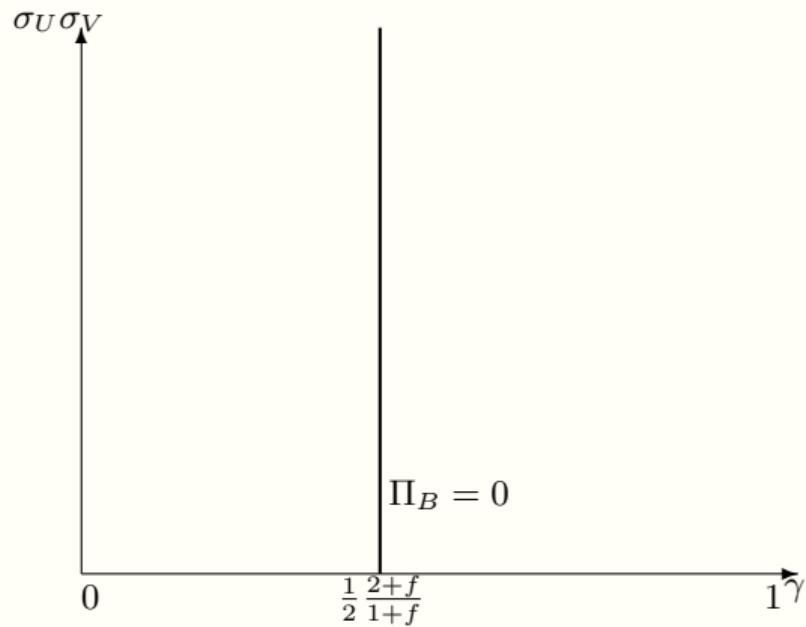
Summary
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Equilibrium remuneration contracts for traders

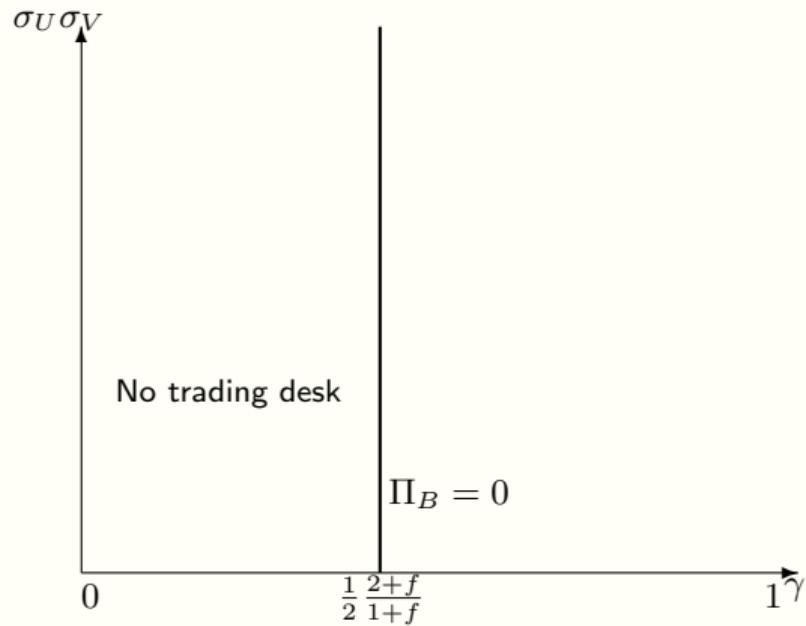
Equilibrium remuneration contracts for traders



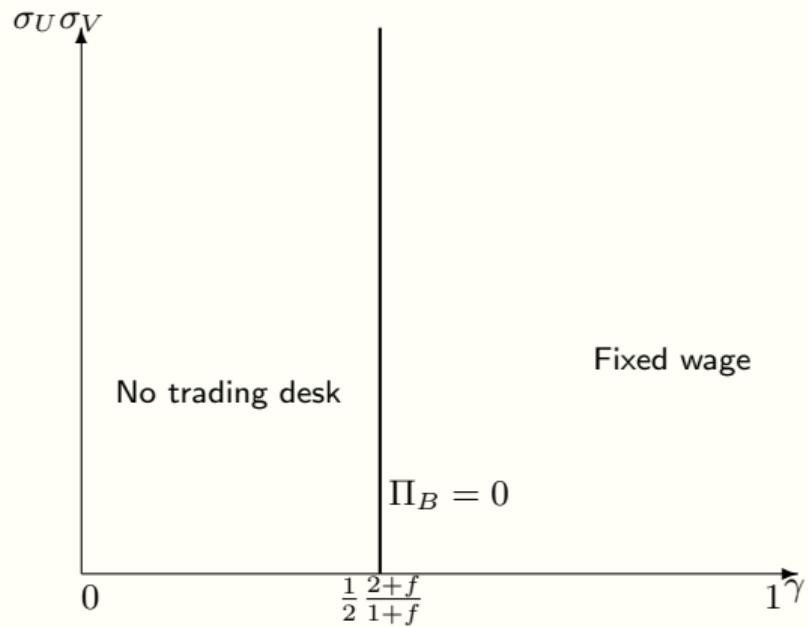
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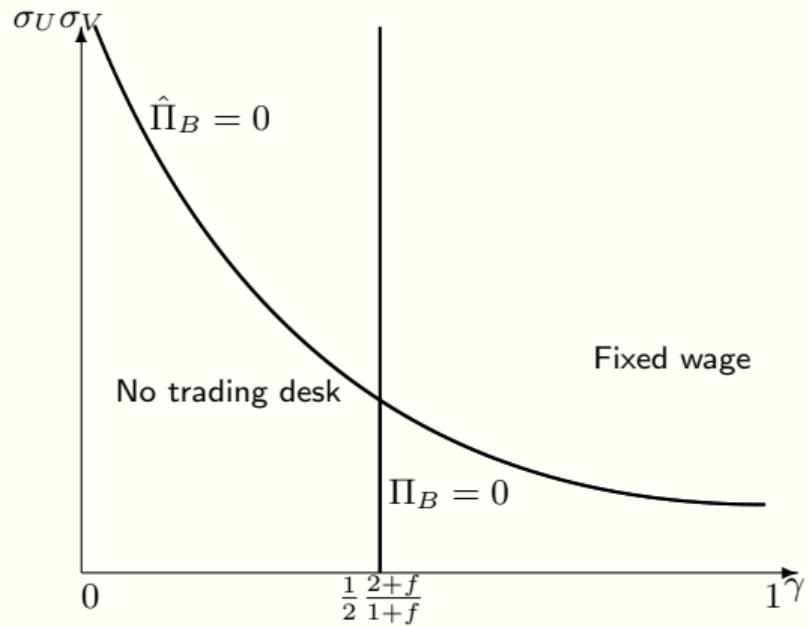
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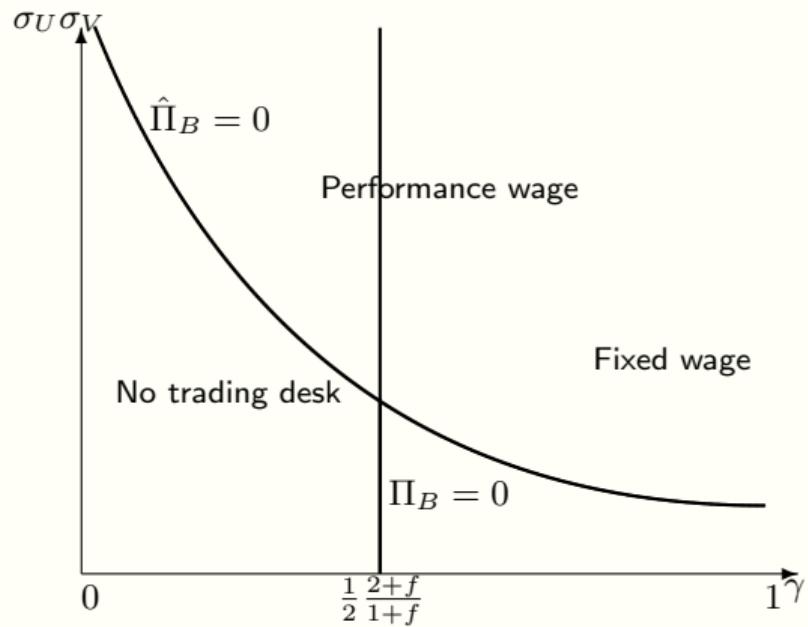
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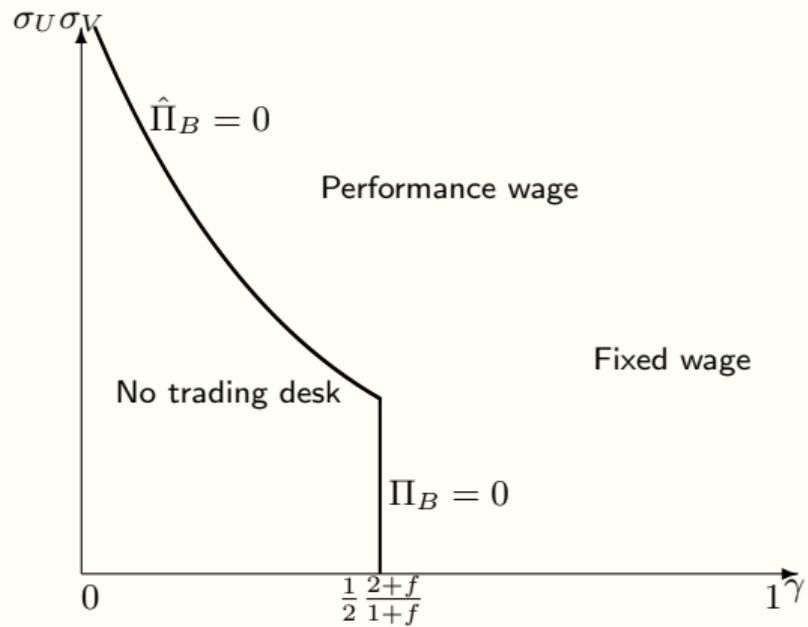
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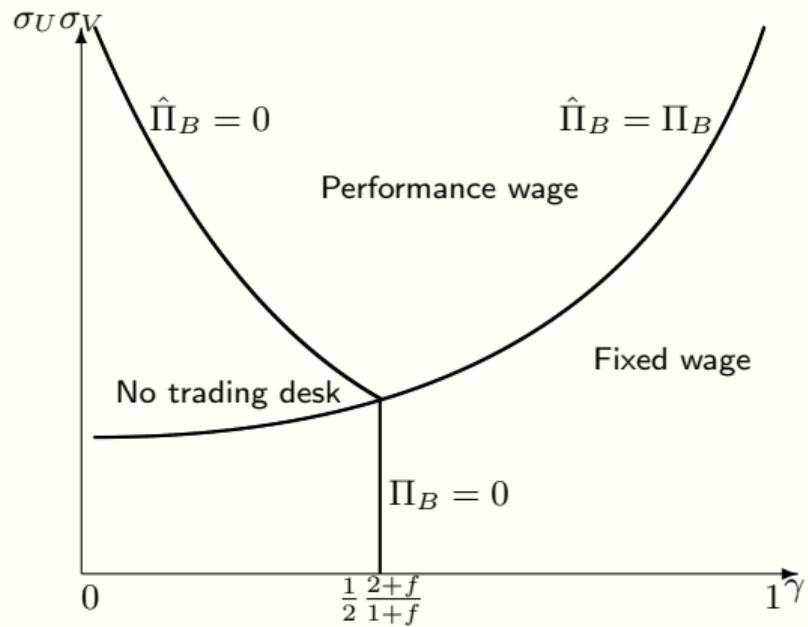
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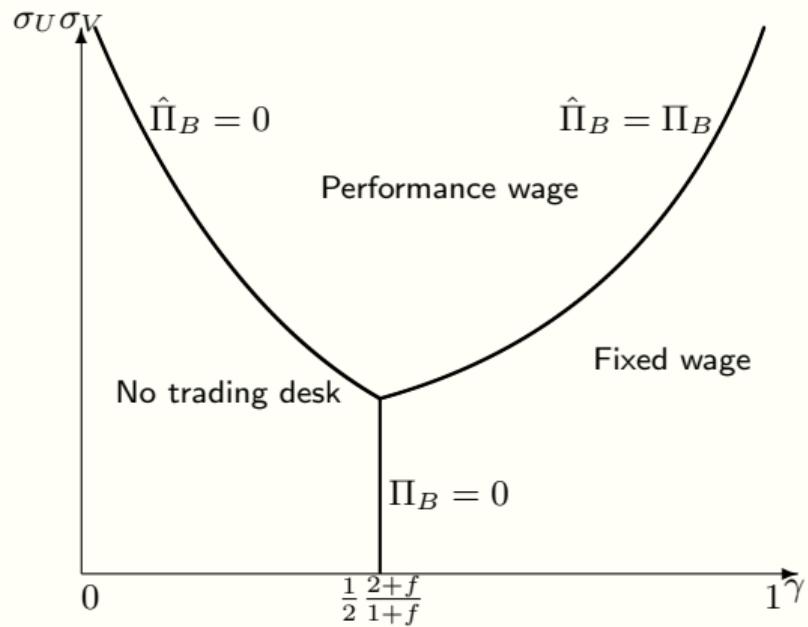
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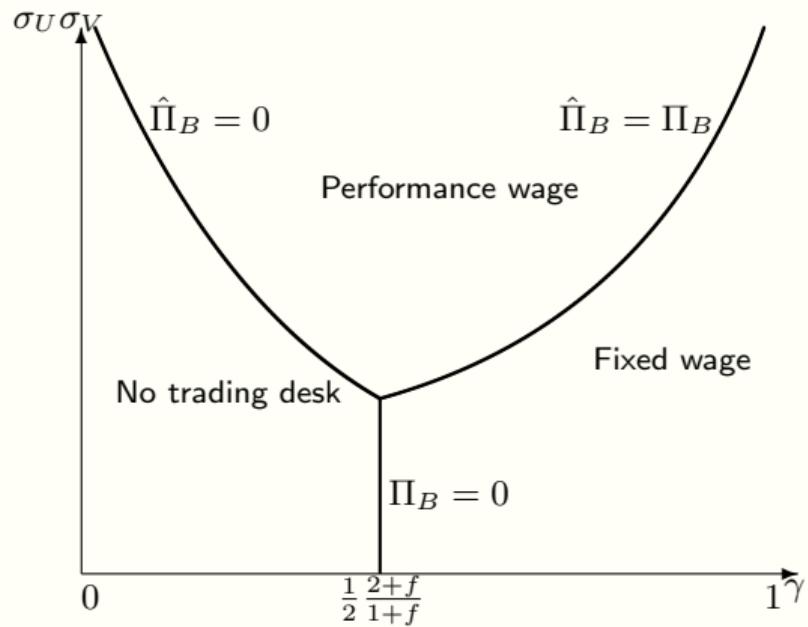
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Equilibrium remuneration contracts for traders



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Performance wages
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Impact of informed traders and uncertainty

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- ▶ For few informed traders, the **losses** from employing **uninformed** traders are too high to allow a fixed wage

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Impact of informed traders and uncertainty

- ▶ For few informed traders, the losses from employing uninformed traders are too high to allow a fixed wage
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- ▶ For many informed traders, the costs of **paying uninformed** traders is low compared to **monitoring costs**, making fixed wages more profitable

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Dominance of remuneration forms

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