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AGENCY PROBLEMS AND ORGANIZATIONAL COSTS IN SLAVE- RUN BUSINESS

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Agency Problems and Organizational Costs in Slave-run Businesses*

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Abstract

In this paper we examine the internal economic organization of the *peculium servi communis* as separate business assets granted to a slave and its (external) relationships with creditors. Literary, legal and epigraphic evidence points predominantly to businesses of small or medium size, suggesting that there must have been some constraints to growth. We identify both agency problems arising within the business organization (governance problems) and agency problems arising between the business organization and its creditors (limited access to credit). We suggest that, although the praetorian remedies had a remarkable mitigating effect, agency problems operated as a constraint to the expansion of these business organizations, both in terms of individuals involved and in terms of capital invested.

JEL classification: K20, L22, L23, N83.

Keywords: peculium servi communis, agency theory, theory of the firm, transaction costs

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I Introduction

Starting from the eighties, literature on Roman law focusing on the period between the second century BC and the second century AD has shown that businesses could be organized as a *plurium exercitio negotiationum per servos*. More generally, this format included a slave, in some cases co-owned,¹ and the assets entrusted to him by his masters (the *peculium*),² with which the slave managed a business. This way of organizing individual or collective enterprises³ had some advantages over the mere partnership contract (*societas consensus contracta*),⁴ the most remarkable of which was an indirect way to achieve limited liability⁵ and direct agency.⁶

Studies on slave-run businesses have stimulated a vigorous scholarly debate, which continues today.⁷ Critics have especially emphasized that comparisons between slave-run businesses and

¹ See A. Di Porto, *Impresa collettiva e schiavo 'manager' in Roma antica (II sec. a.C. – II sec. d.C.)* (1984), 371-377. As concerns the organization of the business, it does not seem to be relevant whether the slave was owned by only one or by several masters (especially p. 259, see below fn. 43). On co-owned slaves see G. Micolier, *Pécule et capacité patrimoniale. Étude sur le pécule. Dit profectione, depuis l'édit 'de peculio' jusqu'à la fin de l'époque classique* (1932), 371-448; M. Bretone, "Servus communis": contributo alla storia della comproprietà romana (1958).

² G. Micolier, *Pécule et capacité patrimoniale. Étude sur le pécule. Dit profectione, depuis l'édit 'de peculio' jusqu'à la fin de l'époque classique* (1932); F. La Rosa, 'Peculium', *Novissimo Digesto Italiano* 12 (1965), 755-757; L. Amirante, 'Lavoro di giuristi sul peculio. Le definizioni da Quinto Mucio ad Ulpiano', in *Studi in onore di Cesare Sanfilippo*, vol. 2 (1983), 3-15. On the etymology of 'peculium' see Varr. de ling. lat. 5.93, Fest. 249, and Serv. in Bucolica 1.32. Cf. L. Ceci, *La lingua del diritto romano. Le etimologie dei giureconsulti romani* (1892), 166, fn. 1.

³ A. Di Porto, *Impresa collettiva e schiavo 'manager' in Roma antica (II sec. a.C. – II sec. d.C.)* (1984), 386 (emphasizing that the most distinctive feature of this format was the possibility to organize both individual and collective limited-liability enterprises by means of the *peculium*). A. Di Porto, 'Il diritto commerciale romano. Una 'zona d'ombra' nella storiografia romanistica e nelle riflessioni storico-comparative dei commercialisti', in S. Romano (ed.), *Nozione, formazione e interpretazione del diritto dall'età romana alle esperienze moderne. Ricerche dedicate al prof. F. Gallo* (1997), vol. 3, 421-422 (emphasizing that the fundamental elements of the organizational modes of businesses through the use of slaves are independent of the fact that the slave and the *peculium* were co-owned. In fact, co-ownership only added a layer of complexity to the business structure without affecting its characteristics in terms of liability and governance). Lawson, *The Roman Law Reader*, 134-141 (emphasizing the level of complexity that slave-run businesses could reach).

⁴ A. Guarino [1972], *La società in diritto romano* (1988); M. Talamanca, 'Società' (diritto romano), *Enciclopedia del Diritto* (1990), vol. 42, 814-860, esp. 827-828). With regard to the possibility that the partnership contract had effect for third parties see V. Arangio-Ruiz [1950], *La società in diritto romano* (1965), 62, 78-92, esp. 84 nt.1, see also 142-144; C. Sanfilippo, 'Sulla irrilevanza esterna del rapporto di società', *Iura* 2 (1951), 159-161 and F. Serrao, 'Sulla rilevanza esterna del rapporto di società in diritto romano', *Studi in Onore di E. Volterra*, vol. 5, (1971), 743-767.

⁵ Cf. M. Montanari, *Impresa e responsabilità. Sviluppo storico e disciplina positive* (1990), 5-6, fn. 7, who claimed that technically the co-owners' liability cannot be considered a limited one since masters could be sued by creditors by way of the *actio de in rem verso*.

⁶ Concerning direct agency under Roman law see W.M. Gordon, 'Agency and Roman Law', in *Studi in Onore di Cesare Sanfilippo* (1983), vol. 3, 339-349; A. Wacke, 'Alle origini della rappresentanza diretta: le azionia dietizie', in *Nozione, formazione e interpretazione del diritto dall'età romana alle esperienze moderne. Ricerche dedicate a F. Gallo* (1997), vol. 2, 583-615; M. Miceli, *Studi sulla rappresentanza in diritto romano* (2008).

⁷ Very recent criticisms to Di Porto's analysis (see note 3) have been voiced by T.J. Chiusi, 'Diritto commerciale romano? Alcune osservazioni critiche', in C. Cascione, C. Masi Doria (eds.), *Fides Humanitas Ius. Studii in onore di L. Labruna*, vol. 2 (2007) 1032-1034; AM. Fleckner, *Antike Kapitalvereinigungen. Ein Betrag zu den konzeptionellen und historischen*

modern notions of economic organizations fall short of considering very significant differences in the respective legal systems, economic and technological development, and economic thinking.⁸ In light of these differences, we ground the analysis exclusively on those features of slave-run businesses that are discussed in the writings of Roman jurists, who identified a set of problems arising in connection with slave-run businesses and proposed solutions to them.

It has recently been observed that “there is still ample room for studying in more detail, and through an analysis specifically oriented by the conceptualizations of the New Institutionalism, both the emergence and the diffusion of what we may call Roman commercial law: (...) the effects of the rules which govern the relationship between principal and agent”.⁹ Accordingly we use modern economic theory only to unveil the economic nature of the problems addressed and of their solutions and to shed light on their effects on the configuration of slave-run businesses.

Grundlagen der Aktiengesellschaft (2010), 230, 234 ff., and B. Bürge, ‘Lo schiavo (in)dipendente e il suo patrimonio’, in A. Corbino, M. Humbert, G. Negri (eds.), *Homo, caput, persona. La costruzione giuridica dell’identità* (2010), 384, expanding on A. Bürge, ‘Book Review of ‘Impresa collettiva e schiavo ‘manager’ in Roma antica (II sec. a.C. – II sec. d.C.)’, *Zeitschrift der Savigny Stiftung für Rechtsgeschichte* 105 (1988), 857, 860, 862 (emphasizing that slaves endowed with a *peculium* cannot be seen as an organizational tool of the business activity). Cf. also A. Bürge, *Römisches Privatrecht. Rechtsdenken und gesellschaftliche Verankerung*, Darmstadt 1999, 197. See the different opinion of P. Cerami, ‘Impresa e *societas* nei primi due secoli dell’impero’, *Annali Università di Palermo* 52 (2008) 96-98 and R. Pesaresi, *Ricerche sul peculium imprenditoriale* (2008). Cf. also P. Cerami, ‘Book Review of ‘Ricerche sul peculium imprenditoriale’, *Iura* 58 (2010), 336-334. Finally, see the recent opinion by G. Polara, ‘Autonomia, controllo del mercato e regola giuridica nell’esperienza storica del commercio’, in C. Russo Ruggeri (ed.), *Studi in onore di A. Metro* vol. 5 (Milano 2010), 61 f.

⁸ See in particular J. Andreau, *Banking and Business in the Roman World* (1999), 69-70; (2001), 131-135; (2004), 114, 123-125 (also observing that the *peculium* cannot be considered as partnership’s assets although it is separated from the *dominus’* assets). Additional criticisms concern the use of modern concepts to describe ancient economies, the difficulties in assessing the prevalence of this format in practice, and the fact that *servi communes* were often workers instead of managers. T. Mayer-Maly, ‘Book Review of ‘Impresa collettiva e schiavo ‘manager’ in Roma antica (II sec. a.C. – II sec. d.C.)’, *Iura* 35 (1984), 117 (arguing that it is difficult to assess how widespread the *negotiatio per servos communes* was); B. Bürge, ‘Lo schiavo (in)dipendente e il suo patrimonio’, in A. Corbino, M. Humbert, G. Negri (eds.), *Homo, caput, persona. La costruzione giuridica dell’identità* (2010), 857, 860, 862 (arguing that *servi communes* were often workers rather than managers and that slave-run businesses were unstable in that they were vulnerable to the *actio communi dividundo*); M. Montanari, *Impresa e responsabilità. Sviluppo storico e disciplina positive* (1990), 5-6, fn. 7 (arguing that the *negotiatio per servos communes* did not seem to be widespread and that technically the co-owners’ liability cannot be considered as limited since creditors could take legal steps against masters through the *actio de in rem verso* in case of unjust enrichment); M. Talamanca, ‘Società’ (diritto romano), *Enciclopedia del Diritto* (1990), vol. 42, 814, fn. 8; and J. Andreau, ‘Les esclaves ‘hommes’affaires’ et la gestion des ateliers et des commerces’, in J. Andreau, J. France, S. Pittia (eds.), *Mentalités et choix économiques des Romains* (2004), 114-115 and 125 (arguing that the analysis is methodologically incorrect); L. Labruna, ‘Il diritto mercantile dei romani e l’espansionismo’, in A. Corbino (ed.), *Le strade del potere. Maiestas populi romani. Imperium, coercitio, commercium* (1994), 129; F.S. Meissel, *Societas. Struktur und Typenvielfalt des römischen Gesellschaftsvertrage* (2004), 65 (concurring with the interpretation of other scholars). In favor of Di Porto: A. Burdese, ‘Book Review of ‘Impresa collettiva e schiavo ‘manager’ in Roma antica (II sec. a.C. – II sec. d.C.)’, *Labeo* 32 (1986), 204; W.D.H. Asser, ‘Book Review of ‘Impresa collettiva e schiavo ‘manager’ in Roma antica (II sec. a.C. – II sec. d.C.)’, *Tijdschrift voor Rechtsgeschiedenis* 56 (1988), 371-2 (inviting more research on the economic context in which the *negotiatio per servos communes* took place).

⁹ E. Lo Cascio, ‘The Role of the State in the Roman Economy’, in P.F. Bang, M. Ikeguchi, H.G. Ziche (eds.), *Ancient Economies, Modern Methodologies. Archeology, Comparative History, Models and Institutions* (Bari 2006), 223. Cf. Jesper Carlsen, ‘Recruitment and training of Roman estate managers in a comparative perspective’, in U. Roth (ed.), *By the Sweat of their Brow* (London 2010). On professional associations in the Roman economy see also K. Verboven, ‘Professional collegia: guilds or social clubs?’, *Ancient Society* 41 (2011), 187-193, 188.

In doing so, we draw *functional* parallels between ancient and modern solutions to similar problems. We do not assert that there is a link between modern economic institutions and the ancient institutions we analyze nor do we claim that modern and ancient institutions can be compared or juxtaposed without taking into account the different contexts in which they operated. We employ modern techniques borrowed from the economic analysis of law in order to examine the problems discussed and the solutions proposed by Roman jurists.¹⁰ Economic analysis allows us to identify the mechanisms at work in ancient businesses and to explain both why some solutions were successful in addressing those problems and what were the limitations of these solutions. The use of economic analysis is justified by the fact that the problems discussed have a marked economic nature since they refer, as we explain, to situations in which there was asymmetric information or moral hazard.¹¹

Therefore, we do not claim that the Roman jurists described the problems we discuss and their solutions in the same terms used in twenty-first-century economics.¹² Nevertheless, the jurists used their experience with the practice of law to propose solutions that helped address these problems. Modern economic theory may shed some light on the question to what extent a solution solved a particular problem and with what consequences.¹³ The problems that emerge from the texts we analyze concern the internal organization of businesses and the relationship between creditors and business. Such problems fall under the heading of agency problems and have long been analyzed within agency theory and, more generally, theories of the firm,¹⁴ which we introduce in the

¹⁰ Cf. B. Frier, 'Law, Economics and Disasters. Down to the Farm: Remissio mercedis revisited', *Bullettino dell'Istituto di diritto romano* 31/32 (1993) 237-70, 239.

¹¹ With asymmetric information we refer to what is commonly known as hidden information (the agent has information on some relevant facts on which the principal is not informed), which generates adverse selection. A different problem is related to hidden action (the agent's actions cannot be observed by the principal), which in turn generates moral hazard. For instance, a debtor may have better information than the creditor on his ability to repay (hidden information) or on the actions he is taking in order to improve such ability (hidden action). Asymmetric information is costly in two ways: it may induce the parties to forego some dealings that with complete information would have been profitable or it may require costly monitoring of the agent's activities by the principal. The framework offered by agency theory is flexible: the roles of agent and principal can be assigned to the various individuals involved in or dealing with a business organization so that different relationships can be brought under the same analytical framework by carefully defining roles and information asymmetries. On adverse selection see G.A. Akerlof, 'The Market for Lemons: Quality Uncertainty and the Market Mechanism', *Quarterly Journal of Economics* 84 (1970), 488-500. With respect to moral hazard see B. Holmström, 'Moral Hazard and Observability', *Bell Journal of Economics* 10 (1979), 74-91. See generally, A. Mas-Colell, M. Whinston and J. Green, *Microeconomic Theory* (1995).

¹² On the economic thinking of Roman jurists see G. Melillo, 'La giurisprudenza romana tra le sistematiche e la riflessione economica', *SDHI*. 71 (2005), 565-583.

¹³ See also I. Morris, BR. Weingast, 'Views and Comments on Institutions, Economics and the Ancient Mediterranean World: Introduction', *JITE*. 160 (2004), 702-703.

¹⁴ For an overview of the theories of the firm see P. Milgrom and J. Roberts, *Economics, Organization, and Management* (1992); O.D. Hart, 'An Economist's Perspective on the Theory of the Firm', *Columbia Law Review* 89 (1989), 1757-1774; B. Holmström and J. Tirole, 'The Theory of the Firm', in R. Schmalensee and R.D. Willig (eds.), *Handbook of*

following.

The *negotiatio per servos communes* provided masters with the possibility to delegate the management of business activities to a slave and benefit from *de facto* limitations of their liability, direct agency, a small measure of entity shielding, and mechanisms to guarantee the continuity of business activities in the event of relevant changes in ownership and management.¹⁵ Nevertheless, the Roman economy seems to have made limited use of this format. Scholars have remarked that, in practice, businesses organized in this way were relatively small.¹⁶ This view rests on the idea that the size of these businesses should be taken as an indication of their relevance within the Roman economy. In this paper, we argue that questions about the size of slave-run businesses can only be answered after another, more fundamental question has been posed: What are the determinants of the (optimal) size of slave-run businesses?¹⁷

Slave-run businesses may have been small in the sense that they involved a limited number of individuals or in the sense that they employed limited amounts of capital.¹⁸ We argue that economic importance is only a secondary factor affecting these two aspects of the size of these businesses. First-order effects are produced by the inherent characteristics of such business organizations and their relations to the markets in which they operate. A business organization is a governance institution for economic activities, some of which could alternatively take place in the market.¹⁹

Industrial Organization (1989), vol. 1; N.J. Foss, H. Lando, and S. Thomsen, 'The Theory of the Firm', in B. Bouckaert, and G. De Geest (eds.), *Encyclopedia of Law and Economics: The Regulation of Contracts* (2000), vol. 3, 631-658; P. Aghion and R. Holden, 'Incomplete Contracts and the Theory of the Firm: What Have We Learned over the Past 25 Years?', *Journal of Economic Perspectives* 25 (2011), 181-197.

¹⁵ See B. Abatino, G. Dari-Mattiacci, and E. Perotti, 'Depersonalization of Business in Ancient Rome', *Oxford Journal of Legal Studies* 31(2) (2011), 365-389 (showing that this format gave the possibility to provide private businesses dealing with private parties with limited liability, direct agency, continuity, and (to a limited extent) entity shielding). With regard to 'capital associations' and their structural features see AM. Fleckner, *Antike Kapitalvereinigungen. Ein Beitrag zu den konzeptionellen und historischen Grundlagen der Aktiengesellschaft* (2010), 240-496. On asset partitioning *loc. cit.* 420-442. Cf. F. Serrao, 'Impresa, mercato, diritto, Riflessioni minime', in E. Lo Cascio, (ed.), *Mercati permanenti e mercati periodici nel mondo romano. Atti degli Incontri capresi di storia dell'economia antica. Capri 13-15 ottobre 1999* (Bari 2000), 31-67, esp. 34.

¹⁶ J. Andreau, *Banque et affaires dans le monde romain (IV siècle av. J.-C.-III siècle ap. J.-C.)* (2001), 131-132; J. Andreau, 'Les esclaves 'hommes d'affaires' et la gestion des ateliers et des commerces', in J. Andreau, J. France, S. Pittia (eds.), *Mentalités et choix économiques des Romains* (2004), 124. More recently AM. Fleckner, *Antike Kapitalvereinigungen. Ein Beitrag zu den konzeptionellen und historischen Grundlagen der Aktiengesellschaft* (2010) 654.

¹⁷ The size of slave-run businesses might have been affected both by external political or ideological factors and by endogenous constraints to growth. In this article, we examine the latter endogenous forces, those forces that operated within business organizations. Cf. A. Schiavone, *La storia spezzata. Roma antica e Occidente moderno* (1996), 192-194.

¹⁸ Evidences provided by literary sources lets us indirectly presume the limited size of the *peculium* (see Plaut. *Stichus* v. 751; Verg. *Eclg.* 1.31). They are in accordance with the etymologies provided by Varro *de lingua latina* 5.19.95 (cf. Varro *res rusticate* 1.2.17), Columella *res rustica* 6.4 and Festus *de verborum significatione* 290 and confirmed also by Plaut. *Mercator* v. 523. Cf. Plaut. *asinaria* v. 496 and *mercator* v. 96; Cic. *In Verrem* II.2. 3.86 and see also the adjective *peculiosus* in Plaut. *Rudens* v. 112 and Apuleius 10.17.

¹⁹ Until the 1970's, economists had focused almost exclusively on the functioning of markets and considered business organizations as exogenously-given economic actors. As it has been sharply put, there was "economics *with firms*" rather

Organizing economic activities in the form of a business has the benefit of saving the costs of using the market (transaction costs)²⁰, but in turn also involves some (organization) costs.²¹ On the one hand, business organizations are there to reduce the transaction costs of using the market. From this perspective, it is evident that the role played by business organizations is intimately related with the limitations of market exchange (market failures) and, more generally, contracts. On the other hand, the organization costs mainly derive from the fact that the hierarchical structure governing a business organization requires a constant flow of information to function properly. Incomplete or asymmetric information generates monitoring costs or foregone opportunities, which amount to organization costs. In the following, we emphasize two broad categories of problems that might have constrained the size of Roman slave-run businesses: governance problems and limited access to credit, of which Figure 1 provides a graphical illustration.

Governance problems can help explain size as limited number of individuals involved. We will examine three sets of governance problems: those deriving from the principal-agent relationship between the owner(s) and the slave managing the *peculium*,²² those deriving from the reciprocal principal-agent relationships among owners, and those arising within the management due to the employment of underslaves. Limited access to finance can shed some light on size as limited amount of capital involved. We examine two sets of problems concerning access to external credit

than “economics of firms”. See N.J. Foss, H. Lando, and S. Thomsen, ‘The Theory of the Firm’, in B. Bouckaert, and G. De Geest (eds.), *Encyclopedia of Law and Economics, Vol. 3: The Regulation of Contracts* (2000), 632. In the 1970’s, scholars started to build on the early contributions by F.H. Knight, *Risk, Uncertainty, and Profit* (1921) and R.H. Coase, ‘The Nature of the Firm’, *Economica* 4 (1937), 386-405 in order to open the black box of business organizations and to understand their relationship with market exchange. Advances in the economics of market failures, property rights, and information made possible a more rigorous analysis of business organizations. In this respect see P. Milgrom and J. Roberts, *Economics, Organization, and Management* (1992); O.D. Hart, ‘An Economist’s Perspective on the Theory of the Firm’, *Columbia Law Review* 89 (1989), 1757-1774; B. Holmström and J. Tirole, ‘The Theory of the Firm’, in R. Schmalensee and R.D. Willig (eds.), *Handbook of Industrial Organization* (1989), vol. 1. The modern economic theory of organizations is part of a broader attempt to understand the functioning of institutions different from the market, see K.J. Arrow, *The Limits of Organization* (1974). A key role in this intellectual endeavor has been played by the notion of transaction costs. See fn. 20.

²⁰ Coase’s insight was that firms could be seen as an alternative to the price system. Some transactions were removed from the market and dealt with within an organization, because there was a “cost to using the price mechanism”. See R.H. Coase, ‘The Nature of the Firm’, *Economica* 4 (1937), 390. This observation led to the idea of transaction costs. Since transaction costs are different costs than ordinary production costs, recognizing the importance of transaction costs also means embracing a theory of business organizations that is not solely based on technology, thus rejecting technological determinism—the idea that production technologies alone account for the organizational design of firms. Cf. O.E. Williamson, ‘The Vertical Integration of Production: Market Failure Considerations’, *American Economic Review* 61 (1971), 112-123, and O.E. Williamson, *Markets and Hierarchies: Analysis and Antitrust Implication: A Study in the Economics of Internal Organization* (1975).

²¹ R.H. Coase, ‘The Nature of the Firm’, *Economica* 4 (1937), 386-405. Organization costs are costs generated within the business and associated with its internal functioning. In contrast, the term transaction costs is usually used to refer to costs generated outside the business in the course of realizing market transactions.

²² B.W. Frier and D.P. Kehoe, ‘Law and Economic Institutions’, in W. Scheidel, I. Morris and R. Saller, *The Cambridge Economic History of the Greco-Roman World* (2007), 134, note that the use of dependents (slaves, family members) suggests that there were agency problems that could not be easily solved by the law.

and access to equity, respectively. Access to both forms of capital depends not only on the existence of a capital market external to the business organization but also on the possibility to tackle the principal-agent problems arising between owners and creditors in addition to the principal-agent problems arising among owners, which we examine in terms of internal governance. While the former limited the owners' ability to finance their enterprises through credit, the latter impeded their commit of own capital.

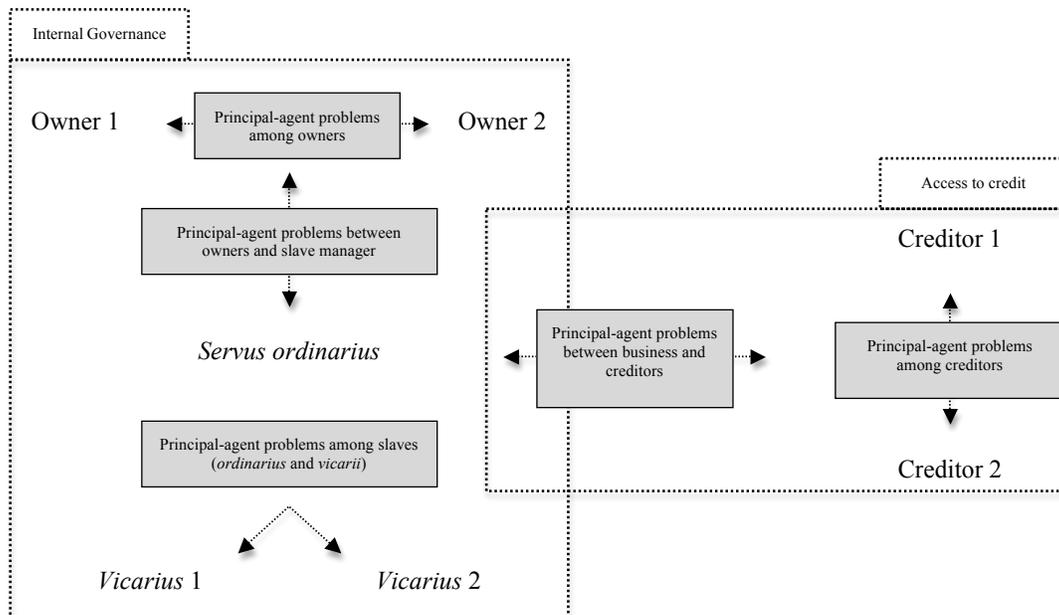


Figure 1: Principal-agent problems in slave run-businesses

Institutions (including private business organizations) are endogenous to an economy in that they develop within an economy and in response to its specific characteristics.²³ Quite clearly, a business organization that emerges in a specific economy need not be found (in the same form or size) in a different economy. We take this view and argue that business organizations (as governance institutions for economic activities) in the Roman economy developed endogenously in

²³ R.H. Coase, 'The Nature of the Firm', *Economica* 4 (1937), 386-405. (emphasizing the endogenous character of economic institutions and, in particular, the firm); D. North and B. Weingast, 'Constitutions and Commitment: The Evolution of Institutional Governing Public Choice in Seventeenth-Century England', *Journal of Economic History* 49 (1989), 803-832 (studying the evolution of constitutional institutions); P. Aghion, A. Alesina and F. Trebbi, 'Endogenous Political Institutions', *Quarterly Journal of Economics* 119 (2004), 565-611 (for a recent, modern view of endogenous political institutions); B.W. Frier and D.P. Kehoe, 'Law and Economic Institutions', in W. Scheidel, I. Morris and R. Saller, *The Cambridge Economic History of the Greco-Roman World* (2007), 113 ("An analysis of the complex relationship between legal institutions and the economy can help us to better understand the basic relationships that characterized the economy of the Greco-Roman world.").

response to agency problems and the available technology to solve these problems.²⁴ This development took the form of specific solutions, which were commented upon by the jurists Gaius and Ulpian, often quoting Julian. These jurists—and to a certain extent also the jurist Paul—offered solutions to some recurring legal problems. By systematically analyzing both the problems presented and their solutions, we are able to identify several specific agency problems, of which the Roman jurists were most likely not aware.²⁵

Slave-run businesses operated within a legal framework based on the *ius civile* but enriched by innovations produced within the formulary system. Both the slave and his *peculium*, (including subsequent acquisitions)²⁶ remained property of the masters. In addition, under the *ius civile*, contracts entered into by slaves could not produce negative effects for their masters. This situation changed from the second century BC,²⁷ in a period of economic expansion, with the recognition of praetorian remedies to creditors of the slave. The underlying principle was that masters should internalize both the profits (*commoda*) and the losses (*incommoda*) deriving from their slaves' business activities.²⁸ The praetorian remedies—later identified with the name of *actiones adiecticiae qualitatis*²⁹—extended the liability of the master for transactions by his slaves,³⁰ making the

²⁴ This idea can be traced back to R.H. Coase, 'The Nature of the Firm', *Economica* 4 (1937), 386-405, and has spurred an enormous amount of literature in economics.

²⁵ We do not claim that Roman jurists examined these problems in a modern fashion. Cf. J. Maucourant, 'Rationalité économique ou comportements socio-économiques', in J. Andreau, J. France, and S. Pittia (eds.), *Mentalités et choix économiques des Romains* (2004), 235-236. On the economic approach in Celsus' *rationes decidendi* and on a comparison of costs and revenues in *scriptores de re rustica* see P. Cerami, 'Impresa e *societas* nei primi due secoli dell'impero', *Annali Università di Palermo* 52 (2008), 81-82.

²⁶ See Gai 3.167.

²⁷ A. Guarino, 'Actiones adiecticiae qualitatis', *Novissimo Digesto Italiano* 1(1) (1957), 271; V. Arangio-Ruiz [1950], *La società in diritto romano* (1965), 7; M. Kaser, *Das Römisches Privatrecht* (1971), vol. 1, 605; J.-J. Aubert, *Business Manager in Ancient Rome. A Social and Economic Study of Institores, 200 B.C. - 250 A.D.* (1994), 70. See also L. de Ligt, 'Legal History and Economic History: the Case of the 'actiones adiecticiae qualitatis'', *Tijdschrift voor Rechtsgeschiedenis* 67 (1999), 206; and L. de Ligt, 'Roman Law and the Roman Economy: Three Case Studies', *Latomus* 66 (2007), 13, arguing for an earlier introduction (third century BC).

²⁸ D. 14.3.1 (Ulp. 28 *ad ed.*). See also A. Cerami, A. Petrucci, *Diritto commerciale romano*, III ed. (Torino 2010), 47-49. Cf. A. Cerami, A. Di Porto, A. Petrucci, *Diritto commerciale romano*, II ed. (Torino 2004), 45-47.

²⁹ A. Wacke, 'Alle origini della rappresentanza diretta: le azioni adiecticiae', in *Nozione, formazione e interpretazione del diritto dall'età romana alle esperienze moderne. Ricerche dedicate a F. Gallo* (1997), vol. 2, 614-615.

³⁰ The chronology of the praetorian remedies is controversial: G. Micolier, *Pécule et capacité patrimoniale. Étude sur le pécule dit profectice, depuis l'édit 'de peculio' jusqu'à la fin de l'époque classique* (1932), 11 and 63, and M. Miceli, *Studi sulla rappresentanza in diritto romano* (2008), vol. 1, 49, refer to the second and first century BC; J.-J. Aubert, *Business Manager in Ancient Rome. A Social and Economic Study of Institores, 200 B.C. - 250 A.D.* (1994), 414, refers to the late second century B.C.; A. Guarino, *Dirittoprivatoromano* (12th ed.) (2001), 336-337, refers more generally to a time between the late pre-classical and the classical period. Also, the order in which these remedies were created is debated: L. de Ligt, 'Legal History and Economic History: the Case of the 'actiones adiecticiae qualitatis'', *TijdschriftvoorRechtsgeschiedenis* 67 (1999), 205-226; A. Wacke, 'Alle origini della rappresentanza diretta: le azioni adiecticiae', in *Nozione, formazione e interpretazione del diritto dall'età romana alle esperienze moderne. Ricerche dedicate a F. Gallo* (1997), vol. 2, p. 587; J.-J. Aubert, *Business Manager in Ancient Rome. A Social and Economic Study of Institores, 200 B.C. - 250 A.D.* (1994), 78-84.

master's liability increase in accordance with his involvement in the businesses.³¹ The praetorian remedies *de facto* made the contracts concluded by a slave enforceable against his master(s), under certain conditions. This development crucially improved the willingness of third parties to rely on the slaves' commitments to repay debts and honor the obligations contracted and, in turn, made it easier for masters to delegate economic activities to their slaves.³² Moreover, although in a radically different way, this format exhibited some characteristics that are common in modern business entities.³³ Furthermore, the use of slaves (as opposed to free individuals) as business managers³⁴ could mitigate the governance problems arising between owners and management,³⁵ while the possibility for the slave-manager to purchase slaves of his own allowed for a hierarchical structure with different levels of management.³⁶ Against this background, we explain why slave-run businesses involved limited numbers of individuals and limited capital.

II Methodology

The problem we discuss in this article interacts with several other issues that, in turn, are controversial and much debated, such as a modernist versus primitivist view of ancient economies, the chronology of *actiones adiecticiae qualitatis* and of the *obligationes naturales servorum*, the formulary structure of the *actiones*, the legal capacity to own assets of individuals *alieni iuris*, the coexistence of partnership and co-ownership, and the importance of accounting techniques for a distinction between *rationes servi* and *ratio dominica*.

³¹ See note 110.

³² See B.W. Frier and D.P. Kehoe, 'Law and Economic Institutions', in W. Scheidel, I. Morris and R. Saller (eds.), *The Cambridge Economic History of the Greco-Roman World* (2007), 128 Cf. A. Watson, *Roman Slave Law* (London-Baltimore 1987), 91.

³³ See note 15 above and accompanying text. Cf. AM. Fleckner, *Antike Kapitalvereinigungen. Ein Beitrag zu den konzeptionellen und historischen Grundlagen der Aktiengesellschaft* (2010) under the section 'Strukturmerkmale' and especially 299-325, 420-441, 495;

³⁴ On the terminology of slave manager proposed by A. Di Porto, *Impresa collettiva e schiavo 'manager' in Roma antica (II sec. a.C. – II sec. d.C.)* (1984), see J. Andreau, 'Les esclaves 'hommes d'affaires' et la gestion des ateliers et des commerces', in J. Andreau, J. France, S. Pittia (eds.), *Mentalités et choix économiques des Romains* (2004), 111. Note that the fact that a slave could be assigned managerial tasks can also be inferred by the fact that the law recognized the possibility that a *peculium* could be directly managed by the slave without any involvement by the master (and, in this case, granted the master limited liability and priority for his credits under the *actio de peculio*). On the coexistence of *peculium* and *praepositio* see J. Andreau, R. Descat, *Gli schiavi nel mondo greco e romano*, 2009 (Italian translation R. Biundo) 109-114. Cf. E. Stolfi, 'La soggettività commerciale dello schiavo: soluzioni greche e romane', *Teoria e Storia del Diritto Privato. Rivista internazionale on line* 2 (2009) 25-26; see further note 110.

³⁵ B.W. Frier and D.P. Kehoe, 'Law and Economic Institutions', in W. Scheidel, I. Morris and R. Saller (eds.), *The Cambridge Economic History of the Greco-Roman World* (2007), 131-132.

³⁶ See note 63.

Our aim is not to provide a solution to each of these issues; rather our analysis has a more limited scope and focuses on the economic factors that had an effect in shaping the characteristics of the *negotiationes per servos communes*. As it has been frequently observed, any attempt to provide a model of reality faces the challenge of isolating few important variables.³⁷ In doing so, one necessarily foregoes some nuances in the hope of being able to draw a broader and analytically more powerful picture. In doing so, we have tried to take into careful account the complex interactions between data and their possible interpretations, as any legal historical analysis requires.

The literature on this topic has traditionally been focused on two main interpretations of the phenomenon we analyze. Part of the literature recognizes the advantages of slave-run businesses over other organizational forms, such as partnerships, and stresses the fact that they allowed for a better management of the risks deriving both from shifts in profitability and from exposure to liabilities. Others, without denying these potential advantages, have emphasized the limited scope of this phenomenon both in terms of capital employed and in terms of individuals involved. While the first view only looks at the advantages and overlooks the costs of such business organizations, the second view relates size to importance without providing a clear explanation as to why economic importance could have acted as a constraint and implicitly suggesting that size was “pathologically” limited. Our approach could be situated at the interface of previous theories as we try to relate costs and benefits of business organization based on the employment of (possibly co-owned) slave managers and show that such businesses were “physiologically” small. That is, we suggest that the observed size was a result of forces operating both internally (organization cost related to governance) and externally (transactions costs related to access to credit) and was not necessarily related to the economic importance of this phenomenon.

Understanding the interplay between transaction costs and organizational costs means addressing questions as to the optimal boundaries, scope, legal configuration, and size of business organizations and has been a challenge for economists since the seventies. Three theories come to the fore: The property rights theory of the firm stresses the optimal *use* of available resources;³⁸

³⁷ See P. Temin, ‘A Market Economy in the Early Roman Empire’, in *Journal of Roman Studies* 91 (2001), 169-181, 169-170.

³⁸ The property rights theory sees the firm as a bundle of property rights—that is, a bundle of assets under unified ownership—and stresses the function of the firm in assuring the optimal use of resources. The boundaries of the firm correspond with those resources that are best used if placed under unified ownership. The property rights theory of the firm, proposed by S.J. Grossman and O.D. Hart, ‘The Costs and Benefits of Ownership: A Theory of Vertical and Lateral Integration’, *Journal of Political Economy* 94 (1986), 691-719; O.D. Hart and J. Moore, ‘Property Rights and the Nature of the Firm’, *Journal of Political Economy* 98 (1990), 1119-1158, is the most influential theory of the firm produced in the last forty years. A fundamental component of this theory is the observation that contracts are necessarily incomplete, because it is impossible (or too costly) to foresee all possible future events and decide *ex ante* on an appropriate course of

instead, the bundled assignability theory of the firm, emphasizes the optimal *transfer* of resources;³⁹ finally, the agency theory focuses on the conflicts of interests arising within the firm and with creditors.⁴⁰ The property rights and bundled assignability theories provide fundamental tools for a mature understanding of the scope of business organizations and of the strategic choices involved, as they explain what are the sets of activities that will most likely be carried out within a business organization (boundaries of the firm) rather than through market exchange. However, for our purposes, the necessary building block for an economic perspective on ancient and modern businesses is an examination of the costs generated by the functioning of the organization both internally and in relation to its market counterparts (creditors). In this respect, agency theory plays a major role. Agency costs are the costs generated by the simple fact that the parties involved in a business organization will typically have different sources of information and hence information available to one party may not be available to another. This perspective provides guidance for our analysis.

III Governance problems

III.1 Governance problems

Agency costs may affect the relationships among the various individuals within the business—owners and (slave-)managers⁴¹—and act as a constraint on the expansion of the firm in terms of

action. Although it is almost always impossible to write perfectly complete contracts, *ex ante* it is possible to allocate control rights, that is, the right to choose a course of action should an unforeseen contingency materialize. Accordingly, control rights are embedded in asset ownership; that is, the owner of an asset is the party holding control rights on the use of that asset. From this perspective, the firm is a bundle of assets under unified ownership, so that firm ownership confers the right to take decisions in residual cases (i.e. those cases not specified in a contract). The theory predicts that the party that makes the most important, non-contractible investments should hold control rights and hence ownership of the firm. In turn, ownership induces that party to make such investments and prevents the other party from free-riding on them.

³⁹ This theory sees the firm as a bundle of contracts, whose value largely depends on the fact that they are bundled together. This theory stresses the importance of legal entities in assuring the bundled assignability of such contracts. By shedding light on such fundamental issues as property and contracts and explaining how they impact on business organizations, these theories provide fundamental insights on the nature and scope of business organizations. This approach has been proposed by K. Ayotte and H. Hansmann, *Economic and Legal Entities as Transferable Bundles of Contracts* (2010), *working paper* and aims at explaining an aspect that is not taken into account by the property rights theory: the fact that modern firms have legal personality. In this perspective, legal personality is seen as a way to ensure bundled assignability of contracts

⁴⁰ S.A. Ross, 'The Economic Theory of Agency: The Principal's Problem', *American Economic Review* 63 (1973), 134-139.

⁴¹ To simplify, for analytical purposes one can distinguish among three groups of individuals: owners, managers, and creditors. Agency problems arise both within the business organization (between owners and managers) and between the business organization and its creditors. Moreover, agency problems arise within each of these three groups of individuals; that is, among owners, within the management, and among creditors. The frictions created by agency problems amount to

individuals involved. In the following, we focus on businesses run by slaves endowed with a *peculium*. We first analyze governance problems—the agency problems arising within the business organization—and show that they constrained the expansion of these business organizations in terms of the number of individuals involved. Then, we examine limited access to credit—mainly focusing on agency problems between business and creditors and among creditors—and emphasize that limited access to credit constrained the expansion of these business organizations in terms of amount of capital invested. In the next subsections, we review several types of such agency problems emerging from cases discussed in the sources and then examine the legal remedies offered to reduce them. Besides legal remedies, two other forces can also keep principal-agent problems under control: external market forces and internal monitoring by the principal. We will also review these two mechanisms and show that they faced limitations in the ancient Roman economy if compared to the legal remedies provided by the *ius honorarium*.

III.1.1 Agency problems among owners

A slave and possibly, but not necessarily, his *peculium* could either be owned by one master or be co-owned by several masters.⁴² Co-owned slave-run businesses involving the use of the *peculium* show organizational patterns—of which we can find evidence in several texts in the *Digesta*⁴³—featuring peculiar principal-agent problems related to the relationship among the various masters. Since each master can take decisions that affect the others, each master is, in this sense, an agent of the others, who assume (for the purpose of the analysis) the role of principals. Each slaveowner has an interest in none of the others putting his own personal gain before the common good of the business. Obviously, the problem is reciprocal so that each slaveowners is both an agent (when he has hidden information or can take hidden actions)⁴⁴ and a principal (when another owner does so) of the others. Among the cases reported by legal sources we discuss those in which a master is in a

organization costs and constrain the expansion of the firm both in terms of individuals involved in the organization and in terms of capital involved.

⁴² See A. Di Porto, *Impresa collettiva e schiavo 'manager' in Roma antica (II sec. a.C. – II sec. d.C.)* (1984), 297-300 and especially 259, who points out that the *exercere negotiationes per servos* implied a multiplicity of *negotiationes* organized in an autonomous way and the existence of a unique residual claimant (an individual or a group) of profits and losses. On legal sources concerning co-ownership of more than two masters see AM. Fleckner, *Antike Kapitalvereinigungen. Ein Beitrag zu den konzeptionellen und historischen Grundlagen der Aktiengesellschaft* (2010) 234 fn. 77.

⁴³ This case is attested by D. 14.4.3 *pr.* (Ulp. 29 *ad ed.*); D. 14.4.5.10 (Ulp. 29 *ad ed.*); D. 15.1.7.1 (Ulp. 29 *ad ed.*); D. 15.1.11.9 (Ulp. 29 *ad ed.*); D. 15.1.19.2 (Ulp. 29 *ad ed.*); D. 15.1.20 (Paul. 30 *ad ed.*); D. 15.1.27.8 (Gai 9 *ad ed. prov.*) and D. 15.1.28 (Iul. 12 *dig.*); D. 15.1.37.2 (Iul. 12 *dig.*); D. 15.1.51 (Scaev. 2 *quaest.*); D. 15.3.14 (Iul. 11 *dig.*) and marginally also by D. 14.1.6 *pr.*-1 (Paul. 6 *brev.*).

⁴⁴ Hidden information refers to cases in which the agent has information concerning some relevant facts on which the master is not informed. In contrast, hidden action refers to cases in which the agent can take actions which affect the master but which the master cannot observe. See also Section I.

position to exploit private information or generate costs for the other masters by his own behavior.

A first source of agency problems is asymmetric information, arising from the fact that the masters could be differently informed about the slave's actions and dealings.⁴⁵ In this latter regard, in D.14.4.3 pr. (Ulp. 29 *ad ed.*), Ulpian is obviously concerned with the limits of application of the *actio tributoria* and its relationship with the *actio de peculio*, but discusses a more general case of two masters who are asymmetrically informed about the activities of their commonly owned slave. One of them knows that the slave is trading with funds pertaining to the *merx peculiaris* while the other does not. Besides its legal implications,⁴⁶ asymmetric information has profound economic implications. Different knowledge of the slaves' activities could induce the masters to form different expectations about the future returns of the business or to take different decisions concerning their participation in the business that the slave is running or in connected businesses. Therefore, asymmetric information on the slave's activities may allow the informed master to exploit such information to his own advantage.

Moreover, co-owners of a slave could affect each other's position due the hidden actions that they could take. In the interest of creditors, if a slave was owned by two or more masters and he was engaged in a common trade on the basis of the *merx peculiaris*, the creditor could sue one of the masters for the full amount of his credit;⁴⁷ this was possible even if the co-owners had unequal shares in the business.⁴⁸ It was a later worry for the individual owners to recover from each other what was due according to their shares.⁴⁹ *Prima facie*, co-ownership of a slave created a common pool problem with masters facing joint liability. The fact that such liability was only later apportioned generated a risk for solvent masters, who bore liability in excess of their shares if one

⁴⁵ See cases reported by Ulpian (3 *ad ed.*) in D. 9.4.5 pr. and Paulus (39 *ad ed.*) in D. 9.4.9 (22 *ad ed.*) and in D. 9.4.10 (22 *ad ed.*) and D. 9.4.17 pr. (22 *ad ed.*).

⁴⁶ Cf., among others, T.J Chiusi, 'Contributo allo studio dell'editto *de tributoria actione*', *Memorie dell'Accademia del Lincei* 3(4) (1993), 385.

⁴⁷ This is stated in analogy with the action against the shipowner and the action on the *peculium*. With regard to the *actio de peculio* Ulpian (29 *ad ed.*, D. 15.1.11.9, D. 15.1.13 and 15) emphasizes that each owner can be sued for the full amount, with relevant implication to the *deduction peculii*.

⁴⁸ This was the case when the masters had different shares in the *merx peculiaris* (D.14.3.13.2, Ulp. 28 *ad ed.*).

⁴⁹ In this respect, Julian, quoted by Ulpian in D. 14.3.13.2, raised the question whether each owner should be liable in full, in equal shares or in proportion to his share in the slave or in the *merx peculiaris*. As Julian's opinion is that each *dominus* may be sued for the full amount due to the creditor, Ulpian adds that "the person sued can recover part of what he is made to pay by an action on the partnership or for the division of property" (*iudicium societatis vel communi dividundo*). Cf. also D. 15.1.27.8 (Gai. 9 *ad ed. prov.*): "Nor will the defendant be harmed by being held liable, because if he pays more than his portion, he may recover the balance from his partner or partners by suing the partnership or bringing a divisory action", D. 14.3.14 (Paul. 4 *Plaut.*) and D. 14.4.5.10 (Ulp. 29 *ad ed.*). Note that the latter text applies the same rules to cases without *prepositio*. On the relation between co-ownership of a slave and partnership contract see A. Di Porto, *Impresa collettiva e schiavo 'manager' in Roma antica (II sec. a.C. – II sec. d.C.)* (1984), 377-379. Cf. also the criticism of A. Bürge, 'Book Review of *Impresa collettiva e schiavo 'manager' in Roma antica (II sec. a.C. – II sec. d.C.)*', *Zeitschrift der Savigny Stiftung für Rechtsgeschichte* 105 (1988), 856-865, towards Di Porto's opinion.

of the others became insolvent. Since one's own solvency is a variable that can be affected by one's financial decisions, each owner could expose the others to the risk of insolvency.⁵⁰

Another case concerns problems that could arise from authorizations (*iussum domini*) given to the slave's contract by one of the owners only. Here the legal question is whether creditors could also sue the other masters (D. 15.4.5.1, Paul. 4 *ad Plaut.*).⁵¹ This case evidences a potential agency problem, due to the effects of a master's instructions to the slave for other masters of the same slave, and the concern of the law for such cases.

III.1.2 Agency problems between management and owners

A second set of agency problems could arise between the owner (or the owners) and their slave. In this case the slave (the agent) might have asymmetric information or take hidden actions⁵² to his own benefit, thereby sometimes disregarding the owners' (principals') interests.

On the one hand, from a legal standpoint, the lack of awareness of slaves' business activities could be seen as strengthening (instead of weakening) the master's position towards external creditors. This is the case of the *privilegium deductionis* granted to owners only if the person in power entrusted with the *peculium* had acted *insciente domino*. Likewise, under certain circumstances, if the master had knowledge of dependants' dealings and did not distance himself from the slave's management of the *peculium*, he was liable to an *actio tributoria*. In other words we are dealing here with a case where more information expands the slaveowner's liability on the basis of a deeper control on his dependants' activities.⁵³

On the other hand, lack of information could result in adverse consequences for the slaveowner. The case mentioned in D.14.4.5.1 (Ulp. 29 *ad ed.*) concerns asymmetry of information between a slave and his master about the activities of underslaves; this text evidences that the slave could be more informed than the master and offers a mirror image of the case of differently informed masters reported in D.14.4.3 pr. (Ulp. 29 *ad ed.*) and commented on above.

Several other texts⁵⁴ offer examples of (hidden) actions by the slave that could, absent legal

⁵⁰ As we will examine, such risks were mitigated by the limited liability arising from the use of a *peculium*.

⁵¹ Paulus notes that creditors could act only against the authorizing master. If the authorization had been given by two masters, then both of them were jointly liable vis-à-vis creditors.

⁵² For both problems see the previous subsection and Section I.

⁵³ It has been recently remarked that the control of the owner on slaves' activities and his liability towards creditors proportionally increased in case of *voluntas, praepositio* or *iussum domini*. Cf. T.J. Chiusi, 'Zum Zusammenspiel von Haftung und Organisation im römischen Handelsverkehr. Scientia, voluntas und peculium in D. 14.1.19-20', in *ZRA*.124 (2007) 94-112.

⁵⁴ See also D. 2.13.4.3 (Ulp. 4 *ad ed.*); D. 3.5.41 (Paul. 32 *ad ed.*).

correctors, negatively affect his master: disregard for the master's instructions or misuse of funds. Concerning the first issue, in D.15.1.37.1 (Iul. 12 *dig.*) Julian considered the case of a slave who, having been permitted to buy an underslave for eight *aurei* with his master's money, disregarded his master's instructions and bought a more expensive underslave. The slave's purchase could in theory expose the master to additional liability toward the vendor, corresponding to the different amount due.⁵⁵

Concerning the second problem (misuse of funds), in D.15.3.3.9 (Ulp. 29 *ad ed.*) a slave received a loan from a creditor on the assumption that he would use it in the interest of his master. Instead, the slave used the amount he borrowed for other purposes. Plausibly, the slave (ab)used the owner's position in order to credibly commit to repay or obtain more favorable conditions from the lender. The master could be personally liable towards the creditor for the benefit he should have received (but did not in fact receive) or, alternatively, the creditor could be exposed to a loss should the master not be held liable. Most clearly, harm to the masters could derive from theft committed or damage caused by slaves⁵⁶ or by activities in which underslaves engaged in.⁵⁷ Underslaves often benefitted from substantial autonomy, as we explain below. In turn, the possibility of such events and the difficulty encountered in monitoring slaves amounted to agency problems.

III.1.3 Agency problems within management

The management of businesses run by slaves endowed with a *peculium* could be organized as a hierarchical business structure, where the slave could acquire several underslaves (*servi vicarii*), who, in principle, could also have their own underslaves.⁵⁸ Therefore, within the management, agency problems could arise, with the upper layer of the organization being the principal of the lower layer. In D.14.4.5.1 (Ulp. 29 *ad ed.*), we have the case of a business hierarchically structured, with the different layers having different information about the activities of the underslave.⁵⁹ From this case it is clear that the underslave could be involved in business activities of which the slave

⁵⁵ In this case, the fragment states that this additional liability should be imputed to the business assets (*peculium*) rather than to the owner's personal assets (*ratio dominica*). Cf. D.15.1.4 pr. (Pomp. 7 *ad Sab.*).

⁵⁶ D.15.1.9.1 (Ulp. 29 *ad ed.*).

⁵⁷ D.15.1.38.2 (Afric. 8 *quaest.*); D.15.3.17.1 (Afric. 8 *quaest.*).

⁵⁸ See A. Di Porto, *Impresa collettiva e schiavo 'manager' in Roma antica (II sec. a.C. – II sec. d.C.)* (1984), 270-297. Cf. also A. Földi, 'Remarks on the Legal Structure of Enterprises in Roman Law', in *Révue internationale des droits de l'antiquité* 43 (1996), 179-211.

⁵⁹ See below Section III.3 . Cf. also the case described by A. Di Porto, *Impresa collettiva e schiavo 'manager' in Roma antica (II sec. a.C. – II sec. d.C.)* (1984), 303-308, especially 307.

(and the master) had no knowledge⁶⁰ (a case of hidden action).

Moreover, both slaves and underslaves could have debts towards each other or towards the master.⁶¹ These relationships were internal to the business organization and gave rise to the question whether the master could keep his *privilegium deductionis* and from which *peculium* (of the slave, of the underslave, or both) should be deducted what was owed to the master.⁶² Deductions implied that a master's credit would be satisfied prior to other credits.⁶³ Next to their impact for creditors, these occurrences expose the complexity of the relationships internal to the business organization, underscore the degree of autonomy that underslaves had and hence suggest that there must have been relevant agency problems within the management. As several texts show, the activity of underslaves could be relevant not only for the legal position of the master but also for the solvency of the *peculium* of the slave (D.15.1.38.2, Afr. 8 *quaest.*,⁶⁴ and D. 15.3.17.1, Afr. 8 *quaest.*). Thus, decisions taken by underslaves—for instance, incurring a debt or entering into a contract—could potentially harm the interests of the slave if they were computed in his *peculium* and not only in the *peculium* of the underslave.

III.2 Mitigating governance problems

The praetorian remedies offered various solutions to the agency problems emphasized above and, although unable to solve them completely, helped to reduce the impact of those problems that could not be addressed directly by the parties. Again, the *Digesta* offer several examples of this trend. We will first examine the posture of the praetorian remedies vis-à-vis agency problems among owners. Then, we will analyze the solution provided by the edictal remedies to meet the needs generated by problems arising within the management.

⁶⁰ See the case mentioned by Paul. (22. *ad ed.*) in D. 9.4.19.2 (22 *ad ed.*) Si servus tuus navem exercuerit eiusque vicarius et idem nauta in eadem nave damnum dederit, perinde in te actio danda est ac si is exercitor liber et hic vicarius servus eius esset, ut de peculio servi tui ad noxam dedere vicarium damneris: uttamen, si servi tui iussu vel sciente et patiente eo damnum vicarius dederit, noxalis actio servitui nomine esse debeat. Idemque sit etiam, si nautam facere iusserit.

⁶¹ D.15.1.17 (Ulp. 29 *ad ed.*).

⁶² Such arrangement have also been interpreted as a way to spread business risk; see P. Cerami, A. Di Porto and A. Petrucci, *Diritto commerciale romano. Profilo storico* (3th ed.) (2010), 76-87. Cf. D. 15.3.17.1 (Afr. 8 *quaest.*).

⁶³ Presumably, Servius was the first jurist to deal with the problem of whether the master could deduct from the *peculium* what the slave (*ordinarius*) owed to the underslaves (*vicarii*). See F. Reduzzi Merola, 'Servi ordinari e schiavi vicari nei *responsa* di Servio e nel teatro di Plauto', in F. Reduzzi Merola (ed.), *Forme non convenzionali di dipendenza nel mondo antico* (2007), 21-29, esp. 24; F. Reduzzi Merola, "Servo parere". *Studi sulla condizione giuridica degli schiavi vicari e dei sottoposti a schiavi nelle esperienze greca e romana* (1990). Cf. A. Földi, 'Remarks on the Legal Structure of Enterprises in Roman Law', *Révue internationale des droits de l'antiquité* 43 (1996), 179-211, and G. Micolier, *Pécule et capacité patrimoniale. Étude sur le pécule. Dit profectice, depuis l'édit 'de peculio' jusqu'à la fin de l'époque classique* (1932), 146-186.

⁶⁴ Cf. D.15.1.18 (Paul. 4 *quaest.*).

When the co-owners had jointly employed their slave in a business, all of them shared liability towards third parties, as can be inferred by several fragments of the *Digesta* such as D. 15.1.27.8 (Gai. 9 *ad ed. prov.*) about the *actio de peculio*. The same solution applied if a defendant had been sued by way of the *actio exercitoria* (D. 14.1.1.25, Ulp. 28 *ad ed.*, D. 14.1.2, Gai. 9 *ad ed. prov.* and D. 14.1.3, Paul. 29 *ad ed.*)⁶⁵ or the *actio institoria* (as can be deduced from D.14.3.13.2, Ulp. 28 *ad ed.*)⁶⁶. Notably, this liability was joint in that creditors had an action for the entire amount of their credit against all of the masters⁶⁷ regardless of their respective parts in the business (which did not need to be equal). Each master could be sued in full by creditors even though any acquisition by the slave would enrich each co-owner *pro parte*, depending on the share he had in the slave.⁶⁸

This solution served a commercial interest as it prevented “a person who dealt with a single contractor” having to “split his suit between several defendants” (Gai. 9 *ad ed. prov.*, D. 15.1.27.8 consistently with D. 14.1.1.24, Ulp. 28 *ad ed.*)⁶⁹, thereby reducing transaction costs and facilitating business. However, at the same time, joint liability generated an agency problem among owners, as the master who had been sued also faced liability in account of the others. The natural option open to the master who bore liability was to seek compensation from the others. If this attempt failed, different remedies were available. The master could resort to an *actio communi dividundo*, based on the co-ownership of the slave, or to an *actio ex societate*,⁷⁰ based on the partnership contract.

An additional problem is examined D. 15.1.11.9 (Ulp. 29 *ad ed.*) and concerns whether a

⁶⁵ In D. 14.1.5 (Paul. 29 *ad ed.*), an individual employed in his maritime business a *servus alienus*. In this case, the *dominus servi* was allowed to act with the *actio exercitoria* against the *exercitornavis* if a contract he had concluded with the slave was not honored. It is worth noting that the passage reports a case in which a master is allowed a remedy for dealings he had with his own slave in account of the economic nature of the transaction and of the asymmetric information and control powers between the master and the individual employing the slave. Doing otherwise would have inevitably exacerbated agency problems by allowing the managing party to generate negative externalities for the slave master. More broadly, this solution recognizes that a slave may be an agent of a different individual from his own master. The same solution applied to a co-owned slave whom only one of the masters employs in a maritime business. In cases, in which the common business was run by a slave not commonly owned (as in the example above), the available actions were the *actiones ex locato* or *ex conducto* for onerous services and the *actio mandati* for gratuitous services. With regard to agency problems, the peculiarity of maritime business shows other cases relevant for our purpose.

⁶⁶ See also A. Di Porto, *Impresa collettiva e schiavo ‘manager’ in Roma antica (II sec. a.C. – II sec. d.C.)* (1984), 207-209 and 214.

⁶⁷ As can be inferred from D. 15.1.27.8 (Gai. 9 *ad ed. prov.*), D. 14.1.1.25 (Ulp. 28 *ad ed.*) and D.14.3.13.2 (Ulp. 28 *ad ed.*).

⁶⁸ See the general principle deducible from D. 45.3.5 (Ulp. 48 *ad Sab.*).

⁶⁹ Cf. also D. 14.1.2 (Gai. 9 *ad ed. prov.*) “*ne in plures adversaries dstringatur qui cum uno contraxerit*” (for otherwise a person who dealt with a single contractor would have to split his suit between several defendants). For this and other citations, we use the English edition of the Digest: A. Watson (ed.), *The Digest of Justinian* (2009).

⁷⁰ See D.14.3.13.2 (Ulp. 28 *ad ed.*) and D. 14.3.14 (Paul. 4 *ad Plaut.*), where the *servus alienus* is appointed to manage a common *merx pecularis*. Cf. D.15.1.19.2 (Ulp. 29 *ad ed.*) emphasizing that “*in duobus dominis sufficiat pro socio vel communi dividundo actio*” (between two owners the need met by an action on the partnership or on an action for the division of common property) and, with regards to the *iudicium societatis*, see also D. 14.1.3 (Paul. 29 *ad ed.*). See also D. 45.3.28.1 (Gai. 3 *de verb. oblig.*) and D. 41.1.45 (Gai. 7 *ad ed. prov.*).

defendant sued for the full amount could deduct what was due to his partner. Julian's opinion, shared by Ulpian, is in favor of the deduction, as confirmed by D. 15.1.13 (Ulp. 29 *ad ed.*) and indirectly by D. 15.1.15 (Ulp. 29 *ad ed.*). Ulpian explains that "if the *peculium* is held in common, an action will lie for the full amount, and deduction may be made of what is owed to the other". This type of approach was not applicable—and was indeed not necessary—when a co-owned slave had been given two separate *peculia* by the two masters. If each master kept his *peculium* separate neither could be sued on the other's *peculium*.⁷¹

The posture of the praetorian remedies vis-à-vis other agency problems among owners may be seen as an attempt to keep the positions of the different owners separated when this was possible. In D.14.4.3*pr.* (Ulp. 29 *ad ed.*), we have the case of two masters: one of them knew that the slave was trading with funds pertaining to the *merx peculiaris* while the other did not. Knowledge of this type also had consequences for the liability of the masters: a knowing master could be sued by way of the *actio tributoria*, while a non-knowing master also enjoyed an additional protection related to the *deductio peculii*.⁷² The problem incidentally discussed in this text is whether knowledge on the part of one of the masters could (negatively) affect the liability regime of the other (non-knowing) master; the solution given by Ulpian, in line with Julian's opinion, is that two different regimes should apply to the two masters. This solution shields the non-knowing master from increases in liability arising from the fact that the other master was more involved in the trading activity of the slave. As a result, distinguishing the liability regime applicable to the two masters, this rule removes this specific agency problem as it prevents a master's knowledge of the slave's trading to have effects on the other masters. By analogy, Ulpian (D.14.4.5.1, Ulp. 29 *ad ed.*) adopts a similar solution, proposed by the jurist Pomponius, for the case of a business hierarchically structured,

⁷¹ D. 15.1.15 (Ulp. 29 *ad ed.*). Cf. D. 45.3.1.2 (Iul. 52 *dig.*) *Si servus communis meus et tuus ex peculio, quod ad te solum pertinebat, mutuum pecuniam dederit, obligationem tibi adquiret et, si eandem mihi nominatim stipulatus fuerit, debitorem a te non liberabit, sed uterque nostrum habebit actionem, ego ex stipulatu, tu quod pecunia tua numerata sit: debitorem me doli mali exceptiones ummovere poterit.* (If a slave belonging to you and me in common has made a loan from his *peculium*, which belongs exclusively to you, he acquires the obligation for you, and even if he has stipulated for the same sum in my name, he will not release the debtor from his obligation. Each of us will have an action, I on the stipulation and you because it is your money that has been paid over; however, the debtor will be able to defeat me with the defense of fraud).

⁷² D. 14.4.1 *pr.* (Ulp. 29 *ad ed.*): One of the advantages of this edict is that it treats the master as an external creditor if he was aware that his slave was trading with the stock of the *peculium*, whereas in other cases he is privileged in respect of his slave's contracts, being liable only for what remains in the *peculium* after everything due to himself has been deducted. Thus, as considered in D. 14.4.3 *pr.* (Ulp. 29 *ad ed.*), the defendant *sciens* was subject to a deduction of all that is owed to the master who did not know. But if the suit was brought against the *dominus ignorans*, "it must be by way of the *actio de peculio*: so a full deduction must be made of anything owed to the master with knowledge, just as it would be if he himself had been sued on the *peculium*".

involving both slaves and underslaves managing a *merx peculiaris*.⁷³

Against the master who knew that his underslaves were engaged in a trade, Ulpian holds that the appropriate remedy is the *actio tributoria*. By contrast, if the slave had knowledge of the underslave's trading, although the master did not, the suit should be brought against the master by way of *actio de peculio*.⁷⁴ Thereby, a softer liability regime is applied to a master who is less involved in the business.

Most likely agency problems arising with or within the management left fainter traces in the legal sources because slaves were not considered legal persons under Roman law and the use of force was a readily-available disciplining device. One exception is D.15.1.38.2 (Afric. 8 *quaest.*), which reports another case of a business hierarchically structured, addressing some of the agency problems arising within the management. Here the jurist examines a case where the slave was endowed with a *peculium*, including an underslave, whose value was double the amount owed to the master. Examining the possibility of a creditor's suit against the master, Africanus considers whether the master has to suffer a loss equal to the value of the underslave's debt. In principle, the liability of the owner under the *actio de peculio* was net of the credits he had with the slave—that is, for his credits towards the *peculium*, he had priority over other creditors. Instead, in this case, the jurist states that the whole value of the underslave should be taken into account without deducting his debt to the master according to the principle that “no one can be treated as forming part of his own *peculium*”. From the slave's perspective, this solution shields him from over-indebtedness of his own underslave even in cases when they contracted debts with their common master.

Finally, from D.15.1.17 (Ulp. 29 *ad ed.*) results that creditors of the slave could seize assets pertaining to the *peculium* of the underslaves of the said slave, but, in contrast, creditors of an underslave could not seize assets pertaining to the slave's *peculium* (beyond the underslave's *peculium*).

III.3 Governance problems as a constraint

Governance problems within the business increased as the number of individuals involved

⁷³ See A. Di Porto, *Impresa collettiva e schiavo 'manager' in Roma antica (II sec. a.C. – II sec. d.C.)* (1984), 307-330.

⁷⁴ In this case, from the *peculium* of the underslave the master was allowed to deduct what was owed to him, but not what was owed to the slave. See T.J Chiusi, 'Contributo allo studio dell'editto *de tributoria actione*', *Memorie dell'Accademia del Lincei* 3(4) (1993), 382-384. Pomponius's advice quoted by Ulpian (29 *ad ed.*) in D.14.4.5.1 is that in case of knowledge of both the master and the slave, the *dominus* should be liable not only to an *actio tributoria*, but also to an *actio de peculio*, “the former in respect of the underslave, the latter in respect of the *peculium* of the slave”; debts due to the master and debts due to the slave “will both qualify for proportional deduction ‘in respect of the *merx*’”. With regard to the different case of the maritime trade cf. D. 14.1.22 (Ulp. 28 *ad ed.*).

increased.⁷⁵ Adding one additional individual to the business entity does not simply add one measure of monitoring costs. The total increase in monitoring is much larger, as every addition to the partnership imposes a monitoring cost (m) on all pre-existing partners. Each additional partner brings about a greater increase in monitoring costs, so that monitoring costs increase faster than the number of partners. A natural boundary on the size of ordinary businesses arises at the point where increasing marginal governance costs meet decreasing marginal returns to scale.⁷⁶

What the optimal size of businesses was is a matter of empirical investigation that cannot possibly fall within the scope of this paper; however, in our example⁷⁷, the balance of costs and benefits heavily depends on the baseline cost of monitoring m . The greater this cost, the smaller the optimal size of businesses. In turn, m can be seen as a proxy of the number and importance of agency problems that were not completely addressed by the law and were left to be solved by the masters themselves. Such residual governance problems can be easily identified in several cases described in the *Digesta*, which give important hints as to why masters had to monitor each other to a substantial extent.

A similar logic also applies to increases in size due to an increment at the bottom of the hierarchical structure of the business through the employment of underslaves. As in the case of several masters, the law does not perfectly shield from adverse effects and there remain agency problems to be solved. The activities of the underslave can have a potentially negative impact on the master's (or masters') position, even if liability is confined to the *peculium*. It is in the interest of the master and, to a large extent, also of the slave to assure that the capital invested in the *peculium* is not affected by business decisions taken by the underslaves. A slave endowed with a *peculium* could delegate certain activities to underslaves⁷⁸ or could rent the underslave's services to a third party; moreover, the underslaves could be engaged in dealings of their own D. 14.4.5.1 (Ulp.

⁷⁵ Consider a simple example: with two owners, each owner needs to monitor what the other owner is doing. Assuming that the monitoring cost is equal to m , the total amount of monitoring going on among the owners will be equal to $2m$ (each owner monitors the other). With three owners, each owner needs to monitor two other owners, so that, in total, the amount of monitoring will be 3 times $2m$, that is, $6m$. Moving to four owners, each of them monitoring the other three, the amount of monitoring is $12m$; with ten owners total monitoring costs rise to $90m$, and so forth.

Although this example does not carry any specific information about how business was done in practice, it nevertheless evidences important, stylized facts. As the example shows, adding one partner increases monitoring costs in a more-than-proportional fashion. Moving from two to three partners increases monitoring costs by $4m$ (from $2m$ to $6m$), while moving from three to four partners increases monitoring costs by $6m$ (from $6m$ to $12m$).

⁷⁶ R.H. Coase, 'The Nature of the Firm', *Economica* 4 (1937), 386-405.

⁷⁷ See fn. 82.

⁷⁸ The sources report cases of underslaves appointed as managers of maritime businesses (D. 14.1.1.22, Ulp. 28 *ad ed.*) or of a store (D. 14.3.11.8 Ulp. 28 *ad ed.*).

29 *ad ed.*),⁷⁹ contract debts with their own masters (D.15.1.17, Ulp. 29 *ad ed.*;⁸⁰ D.15.1.38.2, Afric. 8 *quaest.*) or enter into contracts with third parties to the benefit of the slave or of the master (D. 15.3.17.1, Afr. 8 *quaest.*).

Economists have identified various mechanisms that keep the interests of the various participants in a business venture aligned, principally with reference to management and owners.⁸¹ In particular, the market for corporate control,⁸² the market for managerial services,⁸³ the financial market,⁸⁴ and the product market⁸⁵ have been advocated as forms of indirect control on management in modern corporations. The market for corporate control and a well-developed financial market were simply non-existent in ancient Rome. A market for managerial services existed to a certain extent only in the form of the slave market, which, however, cannot be compared to a modern labor market for managers. The product market did exercise a certain degree of control on managerial performance, especially by providing masters with imperfect but nevertheless valuable signals. However, transportation costs and product perishability severely constrained trade both in size and in reach. Market discipline was certainly not enough to remove agency problems completely.

In addition, modern businesses rely on sophisticated forms of accounting, auditing and certification, so that information can be reliably transmitted from management to owners and potential investors or creditors.⁸⁶ Accounting in the Roman world between the second century BC and the second century AD was based on the recording of a limited amount of information concerning capital assets and (only marginally) income.⁸⁷

⁷⁹ See above Sections III.2 and III.1.3.

⁸⁰ See above Section III.1.3.

⁸¹ See generally, F.H. Easterbrook and D.R. Fischel, *The Economic Structure of Corporate Law* (1991).

⁸² The market for corporate control puts pressure on management in that underperforming corporations are more likely to be taken over and the management replaced; H.G. Manne, 'Mergers and the Markets for Corporate Control', *Journal of Political Economy* 73 (1965), 110-120; M.C. Jensen, 'Agency Costs of Free Cash Flow, Corporate Finance and Takeovers', *American Economic Review* 76 (1986), 323-329.

⁸³ The market for managerial services rewards good managers by offering performance-related compensation schemes and opportunities for better jobs; E.F. Fama, 'Agency Problems and the Theory of the Firm', *Journal of Political Economy* 88 (1980), 288-307.

⁸⁴ The financial market puts pressure on management as the cost of credit may depend on the performance of the firm; M.C. Jensen, 'Agency Costs of Free Cash Flow, Corporate Finance and Takeovers', *American Economic Review* 76 (1986), 323-329.

⁸⁵ The product market exercises a natural degree of control by rewarding firms producing good products and punishing those producing bad products; O.D. Hart, 'The Market Mechanism as an Incentive Scheme', *Bell Journal of Economics* 74 (1983), 366-382.

⁸⁶ A.C. Littleton, *Structure of Accounting Theory* (1953).

⁸⁷ D. Rathbone, *Economic rationalism and rural society in third-century A.D. Egypt: the Heroninos archive and the Appianus estate* (1991), 396-401, and D. Rathbone, *Accounting on a large Estate in Roman Egypt*, in R.H. Parker, B.S. Yamey (eds.), *Accounting History: Some British Contributions* (1994, repr. 2001), 13-55. Cf. J. Andreau and J. Maucourant, 'À propos de la rationalité économique dans l'antiquité gréco-romaine. Une interprétation de la thèse de D. Rathbone (1991)', *Topoi* 9 (1999), 47-102. See also G. Minaud, *La comptabilité à Rome. Essai d'histoire économique sur*

The main purpose of accounts (*rationes*) was to record events chronologically in terms of debts and credits per activity,⁸⁸ without a system of double-entry bookkeeping.⁸⁹ Moreover, there is no evidence of any statistical aggregation of data or certification by an independent agency. As a result, ancient accounting provided far less reliable information and could be used to convey information to third parties only to a limited extent.⁹⁰

IV Limited access to credit

IV.1 Limits to access to credit

Modern firms can finance their activities by means of equity—thereby extending the ownership base—or debt. We have already examined the agency problems generated by an expansion in the number of owners. Here we emphasize that agency problems may also have constrained the second source of finance for firms: debt. In the remainder of this section, we will analyze the agency problems that arose between the business and its creditors and emphasize that such problems may have curbed the ability of business managers to raise capital through debt where needed.

la pensée comptable commerciale et privée dans le monde antique romain (2005).

⁸⁸ See the interesting observations on deducibility and accounting by B. Bürge, ‘Lo schiavo (in)dipendente e il suo patrimonio’, in A. Corbino, M. Humbert, G. Negri (eds.), *Homo, caput, persona. La costruzione giuridica dell'identità* (2010), 380-1 (emphasizing the conflicts of interest among the owner, the slave, and creditors; the owner had an interest in understating the size of the *peculium* and overstating the debts that the slave had towards him; the slave had an interest in overstating his credits towards the master; in contrast, creditors, had an interest in overstating the size of the *peculium*).

⁸⁹ G.E.M. de Sainte Croix, ‘Greek and Roman Accounting’, in A.C. Littleton, B.S. Yame (eds.), *Studies in the History of Accounting* (1956), 14-74; R.F. Thilo, *Der Codex accepti et expensi im Römischen Recht. Ein Beitrag zur Lehre von der Litteralobligation* (1980), 40-1; R.H. Macve, ‘Some Glosses on Greek and Roman Accounting’, in P.A. Cartledge and F.D. Harvey (eds.), *Crux. Essays in Greek History* (1985), 233-261; P. Jouanique, ‘A propos de Digeste 35.1.82: survivances antiques dans la comptabilité moderne’, *Revue historique du droit français et étranger* 64 (1986), 533-548, esp. 341; G. Minaud, *La comptabilité à Rome. Essai d'histoire économique sur la pensée comptable commerciale et privée dans le monde antique romain* (2005); B. Bürge, ‘Lo schiavo (in)dipendente e il suo patrimonio’, in A. Corbino, M. Humbert, G. Negri (eds.), *Homo, caput, persona. La costruzione giuridica dell'identità* (2010), 385. L. Waelkens, ‘Gaius IV, 73: debet ou debetur?’, *Tijdschrift voor Rechtsgeschiedenis* 68 (2000), 352, is more open towards the existence of a double-entry bookkeeping technique.

⁹⁰ J. Andreau, *Banque et affaires dans le monde romain (IV siècle av. J.-C.-III siècle ap. J.-C.)* (2001), 125-135; idem, 134 “Ce système dotait les esclaves d’un bon marge d’autonomie de gestion et d’administration comptable par rapport aux segments d’une activité dont les esclaves étaient parfois intermédiaires dans l’exploitation de l’entreprise (*servi institores*), parfois ils étaient exploitants eux mêmes (les esclaves à pécule) ou, enfin, ils étaient chargés simplement de l’administration et de tenir la comptabilité des affaires de leurs maîtres”. It has been recently observed, the simplicity of Roman accounting techniques does not represent proof of primitivism of the economic system. Rather the rudimentary accounting method should be explained by way of elementary means for financing production’s and exchange’s activities. This is the opinion of A. Bresson and F. Bresson, ‘Max Weber, la comptabilité rationnelle et l’économie du monde gréco-romain’, *Cahiers du Centre de Recherches Historiques* 34 (2004), 5. Cf. G. Giliberti, *Legatum kalendarii. Mutuo feneratorio e struttura contabile del patrimonio nell’età del principato* (1984), 20-32, esp. 26.

IV.1.1 Agency problems between business and creditors

Evidence of agency problems between creditors and business could be inferred from the fact that the business—which, for the purposes of the model, can be seen as an agent of the creditors—could incur losses that, in case of insolvency, were externalized on creditors, a possibility that has been attested in the *Digesta*.⁹¹ In addition, under the *actio de peculio*, the credits of the master had priority over other credits and hence had to be deducted from the *peculio*. Deductions could also occur as a result of more complex operations, such as when the slave promised to take over the liability of a debtor toward his master⁹² or when the master promised to take over the liability of his slave.⁹³ Such deductions limited the amount that the creditors could seize and generated agency costs.

Other passages of the *Digesta* also evidence that payments made to the slave were part of the *peculium* unless the master had disposed otherwise, in which case they had to be deducted even if the master had debts toward the *peculium*.⁹⁴ Somewhat similarly, in case the slave had gone surety for a third party or had given guarantee for a debt, the creditor had an action against the *peculium* only if the slave had done so in the interest of the *peculium*.⁹⁵ Therefore, one may deduce that creditors were required to acquire a substantial amount of information in order to assess the solvency of the *peculium*.

Several other events could result in a detriment for the creditors.⁹⁶ In other cases, the creditor could have to split his suit between several defendants for the same credit if a slave was co-owned by several masters and endowed with a *peculium* or appointed to a common business.⁹⁷ Finally, the slave could in various ways transfer resources pertaining to the *peculium* into the personal assets of the owner, thereby causing a potential detriment to the creditors.⁹⁸

Further problems could emerge from the hierarchical organization of the business. In D. 15.1.17 (Ulp. 29 *ad ed.*) and D. 15.1.38.2 (Afric. 8 *quaest.*). Finally, even without the intermediation of slaves, the master could directly harm his business creditors if he tried to reduce

⁹¹ D. 15.1.30 pr. (Ulp. 29 *ad ed.*).

⁹² D.15.1.56 (Paul. 2 *ad Ner.*).

⁹³ D.15.1.11.1 (Ulp. 29 *ad ed.*).

⁹⁴ D. 15.1.7.6 (Ulp. 29 *ad ed.*).

⁹⁵ D.15.3.5-6 (Ulp. 29 *ad ed.*).

⁹⁶ For instance, the master or fellow slave could cause damage to the slave (D. 15.1.9 *pr.*-3, Ulp. 29 *ad ed.*), the master could sell, manumit or give the slave as a gift or dowry to someone else, or the slave could die (D.15.2.1.1-2,6, Ulp. 29 *ad ed.*).

⁹⁷ See D. 15.1.27.8 and D. 14.1.1.24, (Gai. 9 *ad ed. prov.*), *supra* Section III.2. Likewise, the creditor had to face multiple lawsuits for the same credit also in the case discussed by Ulpian in D. 15.1.32 *pr.* (Ulp. 2 *disp.*).

⁹⁸ D. 15.3.13 (Ulp. 29 *ad ed.*).

his liability exposure⁹⁹ by reducing or subtracting funds from the *peculium*.¹⁰⁰

IV.1.2 Agency problems among creditors

A more subtle but not less important set of agency problems concerns the relationship among the different creditors of the same business. Quite clearly, each additional creditor potentially reduces the solvency of the *peculium* for the other creditors. In this sense, each creditor is an agent of the others. Problems among creditors could arise especially when a slave conducted, with *merces peculiares* pertaining to the same *peculium*, different business activities. For instance, a garment factory and a textile works: D.14.4.5.15, Ulp. 29 *ad ed.*) or the same activity in different locations (one in *Bucinum* and one across the Tiber: D.14.4.5.16, Ulp. 29 *ad ed.*).¹⁰¹ These situations created potential conflicts between two distinct sets of creditors with a claim on the same *peculium*. Time could also serve as a confounding factor, in all those cases in which a creditor came forward after the distribution had taken place (D.14.4.5.19, Ulp. 29 *ad ed.*).

The potential for conflicts among creditors is evidenced by the considerations made on the optimal choice of remedy (D.14.4.11, Gai. 9 *ad ed. prov.*).¹⁰² It could happen that creditors had a choice between the *actio de peculio* and the *actio tributoria*,¹⁰³ in that the necessary conditions for the two *actiones* were partially overlapping. While the former allowed creditors to seize a larger set of assets, it obliged them to deduct the master's credits towards the slave from the active. In contrast, the latter remedy did not give priority to the master's credits (*privilegium deductionis*).¹⁰⁴ In turn, the balance affected the total amount of debt to which the *peculium* (or the *merx pecularis*) was exposed. Thus, it was crucial for a creditor to have a good picture of the total exposure of the *peculium* both in its entirety and concerning an individual *merx pecularis*, before making a strategic choice of remedy. In turn, total exposure was a common-pool problem, with no creditor in a position to control or limit the amount of debt that a slave was contracting.¹⁰⁵

⁹⁹ D. 15.2.1 *pr.* (Ulp. 29 *ad ed.*).

¹⁰⁰ D.15.1.21 *pr.* e 2 (Ulp. 29 *ad ed.*); D. 15.1.26 (Paul. *ad ed.*).

¹⁰¹ See T.J. Chiusi, 'Contributo allo studio dell'editto *de tributoria actione*', *Memorie dell'Accademia del Lincei* 3(4) (1993), 287.

¹⁰² Cf. Gai 4.74a.

¹⁰³ See also the discussed passage in D. 14.4.5.1 (Ulp. 29 *ad ed.*), described above on p. 22.

¹⁰⁴ Cf. B. Bürge, 'Lo schiavo (in) dipendente e il suo patrimonio', in A. Corbino, M. Humbert, G. Negri (eds.), *Homo, caput, persona. La costruzione giuridica dell'identità* (2010), 379-380.

¹⁰⁵ See T.J. Chiusi, 'Contributo allo studio dell'editto *de tributoria actione*', *Memorie dell'Accademia del Lincei* 3(4) (1993), 380-2.

IV.2 Fostering access to credit

Given the chilling effect that agency problems may have on access to credit, the *ius honorarium* developed remedies designed to grapple with such problems. In economic terms, addressing the agency problems between business and creditors with respect to access to credit means increasing the probability of repayment, which in turn positively affects creditworthiness and improves businesses' ability to obtain credit.

A first step in this direction can be made by removing unnecessary procedural hurdles, which could make it more difficult for creditors to seize business assets in order to satisfy debt. In case of *negotiationes per servos communes*, in principle, unsatisfied creditors would have to sue all the co-owners, so that doing business with a co-owned slave would have resulted in substantially higher ex post litigation costs for the creditors than doing business with a slave with only one master. This hurdle was removed by allowing creditors to sue one of the masters for the entire amount (under the *actions institoria, exercitoria* and *de peculio*)¹⁰⁶ and then let the co-owners deal with the internal apportionment of the losses.¹⁰⁷ Likewise, time could also be a confounding factor in account of the natural variability of business yields.¹⁰⁸

A second important feature of the rule fostering access to credit is the definition ex ante (before credit is extended) of the extent that the master would be liable ex post. Different remedies define different measures of the master's liability and it was crucial for the creditors to be able to anticipate under which remedy they could sue, should it be necessary. In turn, the choice of remedy was a function of the master's involvement in the slave's business.¹⁰⁹ In a nutshell, the larger the degree of the master's involvement, the broader the scope of his liability towards creditors.¹¹⁰

A third step in the direction of removing obstacles to access to credit is to prevent certain actions by the slave or the masters that would have hurt creditors and, consequently, to provide for

¹⁰⁶ See D.14.3.13.2 (Ulp. 28 *ad ed.*); D. 14.1.1.25 (Ulp. 28 *ad ed.*); D.14.1.2 (Gai.9 *ad ed. prov.*); D. 15.1.27.8 (Gai. 9 *ad ed. prov.*). Cf. D. 14.1.1.24 (Gai. 9 *ad ed. prov.*) and D. 15.1.32 *pr.* (Ulp. 2 *disp.*).

¹⁰⁷ See also D. 15.3.13 (Ulp.29 *ad ed.*) stating the general rule for benefits conferred to one of two co-owners at the expense of the *peculium*. In this case, the creditor could only sue the owner to whom the benefit had been conferred. D. 15.3.14 (Giul 11 *dig.*) contains an exception to this principle.

¹⁰⁸ Thereby, it was believed that if a creditors had sued with the *actio de peculio* and the *peculium* was insufficient for the satisfaction of debt, the creditor should not be precluded a new trial with the same *actio* if the *peculium* had successively grown (D. 15.1.30.4, Ulp. 29 *ad ed.*).

¹⁰⁹ The sources describe this situation as “not being contrary to” (*non nollere*), “knowledge of” (*scientia*), “not objecting to” (*non protestatur sit*), “the master does not say to be against” (*dominus non dicit se contra*) the trading by the slave; D. 14.4.1.3 (Ulp. 29 *ad ed.*). See T.J. Chiusi, ‘Contributo allo studio dell’editto *de tributoria actione*’, *Memorie dell’Accademia del Lincei* 3(4) (1993), 277-399.

¹¹⁰ Cf. T.J. Chiusi, ‘Zum Zusammenspiel von Haftung und Organisation im römischen Handelsverkehr. *Scientia, voluntas* und *peculium* in D. 14.1.19-20’, in *ZRA*. 124 (2007), 94-112.

adequate remedies should these actions nevertheless be taken. Alienation with fraud of the slave could be one of the actions that could possibly hurt the interests of creditors. “As long as the slave remains in power, there is no time limit on the *actio de peculio*”,¹¹¹ but the sale of the slave with *peculium* could have in principle nullified creditors’ claims. To correct for this problem the praetorian remedies extended the liability of the vendor for one year, so that creditors could seize the assets that were originally in the *peculium*.¹¹²

The slave could to be sold with or without *peculium*.¹¹³ If the *peculium* had been transferred together with the slave, a series of specific rules tried to give some economic continuity to the business even after a change in ownership. Significantly, the *actio de peculio annalis* was not available if the vendor had handed over the *peculium* to the purchaser in exchange for a price;¹¹⁴ however, creditors could sue the vendor if the price received for the *peculium* by the vendor had to be intended as to take the place of the *peculium* (D. 15.1.33, Iav. 12 *ex Cass.*; D. 15.1.34, Pomp. 12 *ex var. lect.*).¹¹⁵

Likewise, in line with the goal to assure economic continuity despite the transfer of ownership, jurists advocate remedies preventing the vendor from deducting his credits towards the *peculium* twice (once at the moment of the sale and again when sued by the creditor under the *actio de peculio annalis*: D.15.1.11.7, Ulp. 29 *ad ed.*),¹¹⁶ rules against purchasers who strategically sold the slave pending trial,¹¹⁷ rules preventing the purchaser (if he were sued) from deducting increments that had occurred after the sale,¹¹⁸ and rules preventing the creditor from suing both the vendor and the purchaser at the same time.¹¹⁹ More complex cases arise when either the vendor or the purchaser was a creditor of the slave prior to the sale. In general, the vendor could not sue the purchaser with

¹¹¹ D. 15.2.1 (Ulp. 29 *ad ed.*).

¹¹² D. 15.2.1 *pr.* (Ulp. 29 *ad ed.*); D. 15.2.1.5 (Ulp. 29 *ad ed.*).

¹¹³ D. 18.1.29 (Ulp. 43 *ad Sab.*); D. 21.1.18.2 (Gai. 1 *ad ed. cur.*); D. 21.1.33 *pr.* (Ulp. 1 *ad ed. cur.*).

¹¹⁴ D. 15.1.32.2 (Ulp. 2 *disp.*).

¹¹⁵ Cf. D. 15.1.27.2 (Gai. 9 *ad ed. prov.*). See also D. 15.1.30.5 (Ulp. 29 *ad ed.*). Understandably, the purchaser of a slave could not be sued in the *actio tributoria* (D.14.4.10, Paul. 37 *ad ed.*). This rule seems to be in line with the fact that such an action presupposes knowledge by the master of the slave’s trade, which the vendor could not have.

¹¹⁶ Since what is owed to the master formed no part of the *peculium*, the master could bring a *condictio*. If the slave had been sold without *peculium*, the deductions of pre-existing debts toward the vendor were allowed, plausibly because there was no risk of double deductions due to the fact that the *peculium* had not been sold. Debts incurred after the sale, instead, could not be deducted because at that point the vendor was no longer the master of the slave and hence had a claim on such deductions (D.15.1.47.5, Paul 4 *ad Plaut.*).

¹¹⁷ D.15.1.43 (Paul. 30 *ad ed.*).

¹¹⁸ D. 15.1.32.1 (Ulp. 2 *disp.*).

¹¹⁹ D.15.1.47.3 (Paul 4 *ad Plaut.*).

an *actio de peculio* for such credits.¹²⁰ By barring such suits, this rule forced the vendor to reveal the entity of his credits to the purchaser prior to the sale so that the price could be adjusted and the debts could be deducted from the *peculium*. In contrast, the purchaser was allowed to sue the vendor with respect to previous dealings just like any other creditor could.¹²¹ This possibility probably stemmed from the fact that the *peculium* was not necessarily transferred to the purchaser.¹²²

A related set of rules concerns the *actio de in rem verso*. Ulpian (29 *ad ed.*) in D. 15.3.13 mentions conferrals of benefits (at the expense of the *peculium*) to one of the co-owners only. Such conferrals could be undone with an *actio de in rem verso*. The question arose if such *actio* was available only against the master who had received the benefit or also against a co-owner. Although in general the *actio* was thought to be available only against the master to whom the benefits had been conferred,¹²³ in some cases the *actio* could also be used against the other master. In this case, the defendant could reclaim from his partner what he had been held liable to pay.¹²⁴

Not only could the slave confer *peculium* assets to his master, but the master could also fraudulently reduce the *peculium* by withdrawing assets from it,¹²⁵ in order to reduce his liability exposure. Creditors could then sue the master for fraud of the person with power.¹²⁶

Balancing the interests of creditors with the general advantages given by limited liability, the praetorian remedies protecting creditors found a natural limit in the need to protect the master from the *a domino* effect in bankruptcy in that he did not have to compute credits not yet paid in the *peculium* assets, on account of the fact that execution could be costly, uncertain and lengthy.¹²⁷

So far we have focused on the legal solutions for agency problems between business and creditors, but praetorian remedies were also available to mitigate agency problems among creditors, mainly in respect of (potential) conflicts among creditors who tried to seize the same assets for the satisfaction of debt. The general principle seems to have been that, whenever possible, creditors should be allowed to rely on the assets more strictly related to the business to which they extended

¹²⁰ See D. 15.1.27.4 (Gai. 9 *ad ed. prov.*) and D.15.1.38.3 (Afric. 8 *quaest.*).

¹²¹ D.15.1.47.4 (Paul. 4 *ad Plaut.*).

¹²² See also D. 15.1.27.5-8 (Gai. 9 *ad ed. prov.*) concerning the sale of a slave to whom the vendor had previously extended a loan.

¹²³ D. 15.3.13 (Ulp. 29 *ad ed.*).

¹²⁴ D. 15.3.14 (Iul. 11 *dig.*).

¹²⁵ It was within the powers of the master to reduce and even withdraw the entire *peculium* (D.15.1.8, Paul. 4 *ad Sab.*).

¹²⁶ D. 15.1.9.4 (Ulp. 29 *ad ed.*); D. 15.1.26 (Paul. 30 *ad ed.*); D. 15.2.1 *pr.* (Ulp. 29 *ad ed.*); D. 15.1.30.6 (Ulp. 29 *ad ed.*); D. 15.1.30.7 (Ulp. 29 *ad ed.*); D. 15.1.31 (Paul. 30 *ad ed.*).

¹²⁷ D.15.1.51 (Scaev. 2 *quaest.*).

credit. As we have seen above¹²⁸, Ulpian deals with cases in which a slave ran two different businesses with the same *peculium*. The principle expressed is that creditors of one business should be allowed to seize the assets pertaining to that activity prior to the creditors of the other business, and vice versa. The same principle applied to a business run in two different locations (D.14.4.5.16, Ulp. 29 *ad ed.*). The reason given in the latter text quite explicitly refers to the agency problems that we have identified: it is “fairest to have separate distributions; otherwise, some people might be able to satisfy themselves out of the assets of others and so shift their losses to them”.

Similar concerns were voiced in the case of one creditor obtaining payment in full, to the potential disadvantage of creditors who came forward later. It is well known that under the *actio tributoria* all creditors were treated equally irrespective of the timing of their claims.¹²⁹ In order to prevent unjust distributions, if a creditor had obtained full payment, he had to give a *cautio* in order to guarantee that he would have given a *pro rata* refund to creditors coming forward after the proceeding.¹³⁰ This solution not only guaranteed fairness but also prevented potentially inefficient early liquidations of businesses to a “creditors’ run” motivated by the fear to be late. On top of that, creditors could ask for secured credit (D.13.7.18.4, Paul 29 *ad ed.*) and, in that case, were to be privileged even vis-à-vis the master (D.14.4.5.8, Ulp. 29 *ad ed.*).¹³¹

IV.3 Limited access to credit as a constraint

As we have observed concerning governance problems, agency problems relating to access to external finance grew with the number of parties involved. The text in D.14.4.5.19 (Ulp. 29 *ad ed.*) requiring a guarantee from the satisfied creditor in order to protect other creditors coming forward later is a testimony to this effect. Moreover, the risk of bankruptcy borne by creditors increased with the amount lent to the business, to the effect that there was a natural limit to the size of loans. Although the law tried to grapple with these problems, many unsolved issues remained, partially also due to the limits of the Roman accounting system, which we have already evidenced above.

Creditors could use two readily available ways to protect themselves from the risk of bankruptcy, beyond the protection afforded by the law. One way was to apply high interest rates in order to compensate for the high probability of default. A second strategy was to require secured credit in order to cover against the probability of default. Both strategies clearly reduced the ability

¹²⁸ See above Section IV.1.2. Cf. D.14.4.5.15 (Ulp. 29 *ad ed.*).

¹²⁹ D.14.4.6 (Paul 30 *ad ed.*).

¹³⁰ D.14.4.5.19 (Ulp. 29 *ad ed.*) and D.14.4.7 *pr.* (Ulp. 29 *ad ed.*).

¹³¹ See also D.14.4.5.11-13 (Ulp. 29 *ad ed.*) and D.14.4.5.17-18 (Ulp. 29 *ad ed.*) specifying what assets could be seized.

of businesses to raise external capital, given to natural limits to the amount of interest a business could afford to pay and to the available assets that could be pledged as security. The result of these factors is a constraint on the size of businesses in terms of capital employed.

V Conclusions

In this paper, we examined the economic organization of slave-run businesses and showed that numerous problems discussed by Roman jurists—principally, by Ulpian in his commentary to the Edict—can be interpreted as agency problems. This analytical tool allows for a reexamination of the solutions proposed by the jurists and for the identification of a functional connection between these solutions and the goals of mitigating governance problems within the business and facilitating access to external finance. Despite these efforts, agency problems could not be completely removed and agency costs generated relevant diseconomies of scale, serving as a constraint to the growth of slave-run businesses both in terms of people involved and in terms of capital invested. These observations call for a rethinking of the notion of (optimal) size of Roman slave-run businesses. The evidence we analyze does not imply that the jurists were necessarily aware of the economic rationale of the solutions adopted.¹³² However, further research could shed light on the degree of sophistication of the jurists' analytical tools.

¹³² J. Maucourant, 'Rationalité économique ou comportements socio-économiques', in J. Andreau, J. France, and S. Pittia (eds.), *Mentalités et choix économiques des Romains* (2004), 227, 235, 236; B.W. Frier and D.P. Kehoe, 'Law and Economic Institutions', in W. Scheidel, I. Morris and R. Saller, *The Cambridge Economic History of the Greco-Roman World* (2007), 114 (emphasizing that economics "can be applied to come to a deeper understanding of economic organization and the possibilities for economic growth in the Greek and Roman worlds.").