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Agency costs in primary dealer systems

Filippo Silano

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Agency costs in primary dealer systems*

Filippo Silano‡

Abstract

Easing their access to capital markets, governments have been establishing a primary dealer system. Via bilateral self-enforcing agreements ('dealerships'), government debt management units (DMUs) have been appointing national and global banks (the 'dealers') to actively participate in government securities auctions and/or enhance liquidity in the secondary market. The partnership's non-binding and long-run nature makes dealerships relational contracts. Developing a theoretical framework, this study examines the DMU-dealer principal-agent relationship, with the overarching purpose of identifying and mitigating agency costs. Apart from monitoring costs, the article argues that the partnership entails institutional room for public-private collusion. Although the practice would help fostering the partnership's longevity, it could trigger negative externalities. Mitigating potential risks, policy proposals advocate to enhance: (i) monitoring of the dealers' behaviour in fixed income markets, and (ii) transparency in the DMU's governance of industry's benefits.

Key words: public finance, government debt management, relational contracts, agency costs, dealers

JEL classification: H63, K12, L14, L51

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Information on the primary dealer system was collected in an interview with UK DMU Head of Dealing, Martin Duffell, which was recorded with approval of the interviewee on 4 October 2021.

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I. Introduction

Since the early 1980s, developed and developing countries have been undergoing institutional reforms increasingly marketizing government debt (Currie, Dethier, and Togo 2003; Lemoine 2013; 2016). A process framed in State's financialization, it has led governments to establish partnerships with national and global financial markets via primary dealer systems (Lemoine 2013; Fastenrath, Schwan, and Trampusch 2017).

A 'dealership' is a self-enforcing agreement between a government debt management unit (DMU) and a financial institution (the 'dealer'), where the former appoints the latter to actively participate in the primary market for sovereign debt and/or enhance liquidity in the secondary market (World Bank 2010, 15; FICC Markets Standards Board 2020). In exchange, the DMU provides the dealer with pecuniary and non-pecuniary benefits varying across jurisdictions and institutional frameworks (World Bank 2010, 19–27).

Given the partnership's long-term nature, the literature labels the dealership as a relational contract (Obstfeld and Rogoff 1996; Benczúr and Ilut 2016; Sadeh and Porath 2020). Moreover, as the service object of transaction is affected by uncertainty (Sadeh and Porath 2020), dealerships can be analysed through the lens of complex contract theory (Brown, Potoski, and Van Slyke 2010; Brown, Potoski, and Slyke 2016).

Due to path-dependence, and lack of feasible alternatives the parties are locked in a prisoners' dilemma: the government needs the dealers to efficiently finance its debt; and the industry enhances its reputation trading government bonds, a pivotal benchmark in global financial markets (World Bank 2010; Preunkert 2020b).

Given the parties' conflicting interests, both the DMU and the dealer have an incentive to behave opportunistically. Indeed, the dealer's short-term objective of maximising operative profits contradicts the DMU's mandate of minimising government borrowing costs in the long-run (FICC Markets Standards Board 2020, 7). Within the economy of the contract, as promoter of the agreement, the government must ensure the dealership being attractive to the industry, by balancing obligations with benefits without acting against the interest of taxpayers (World Bank 2010).

Stemming from the afore-outlined institutional arrangement, this paper provides a systematic overview of the agency costs inherent the DMU-dealer contractual

framework and envisions feasible normative solutions mitigating these. Drawing on the parties' micro foundations, the analysis develops a theoretical model describing the DMU-dealer strategic interaction. The study shows that both the DMU and the dealer incur monitoring costs arising from the parties' discretionary behaviour. Additionally, the article argues that due to the government's increasing dependence and reliance on financial markets (Blyth 2013; Streeck 2014; Braun 2020; Rommerskirchen and van der Heide 2022), DMUs would have the incentive to collude with the industry inducing the latter to perform. Although such practice would signal the dealers reciprocity, it bears the risk of negative externalities. Adopting a cost-benefit approach, regulatory proposals call for enhanced supervision of fixed income markets and transparency in the governance of the dealers' awards.

Theoretically illustrating the DMU-dealer strategic interaction, this study advances the literature in the political economy of public debt management. Importantly, it provides a systematic overview of the parties' micro foundations and how these, coupled with uncertainty, affect the dealership's cyclical outcomes. The analysis' policy implications shall guide policy makers predicting the parties' behaviour, with the ultimate purpose of improving the partnership's sustainability.

This paper takes the following form. Section II is an overview of the primary dealer system and Section III of the theoretical literature. Then, Section IV outlines the parties' micro foundations drawing on real-world cases and a theoretical illustration. Hence, Section V provides an analysis of agency costs and normative solutions mitigating those. Lastly, the conclusion summarises the findings and policy implications sketching avenues for future research.

II. Primary dealer systems

Fostering liquidity in sovereign debt markets, developed and developing countries have been relying on multilateral financial institutions guiding the implementation of a primary dealer system (Arnone and Iden 2003; Arnone and Ugolini 2005).

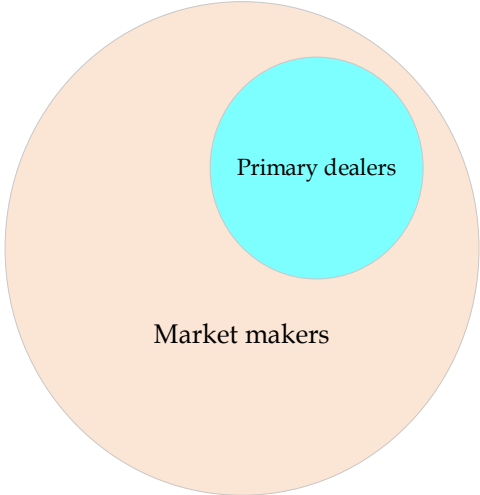
As the successful introduction of the framework requires a highly developed capital market, primary dealer systems are mostly diffused among advanced economies (World Bank and International Monetary Fund 2001; World Bank 2010). Selecting their

partners in managing government debt, the State requires prospect dealers to comply with eligibility criteria, which, although varying across jurisdictions, involve capital and organizational requirements, respectively guaranteeing stability in fixed income markets and technological infrastructure underpinning market liquidity (World Bank 2010, 10–11).

Primary dealer systems were first introduced in the US, in 1960 (The Heritage Foundation 2017; Preunkert 2020b), and in Europe, in 1986, by the UK along with France (Lemoine 2013). Prior the implementation of reforms, governments around the world issued debt limitedly subjected to capital markets’ logic and relying on the central bank (Lemoine 2013; McCauley and Ueda 2012; Currie, Dethier, and Togo 2003).

Being self-enforcing relational contracts, dealerships are embedded in flexibility allowing the parties to adapt the agreement according to the state of the economy (World Bank 2010, 14). Varying across jurisdictions, dealerships are framed in diverse contractual frameworks ranging from a memorandum of understanding and a Code of Duties, to a procedural manual and a decree (World Bank 2010, 14).

Figure 1. Primary dealers are a subset of all secondary market participants



Source: Author’s own illustration

The umbrella term ‘dealers’ denotes two categories of financial institutions: the ‘primary dealers’ and ancillary market makers (the ‘secondary dealers’) – see Figure 1. The main difference between the two is that the primary dealers hold the exclusive right of participating in government debt auctions, whereas the secondary dealers’

operations are circumscribed to the secondary market. Nonetheless, both categories enter an agreement (the 'dealership') with the national DMU: either a 'primary dealership' or an *ad hoc* partnership allowing the bank to operate as a market maker in the secondary market,¹ the former entailing more benefits and obligations than the latter (FCA 2022a, 7).

1. The dealers' benefits and obligations

As promoter of the dealership, the DMU must make the partnership attractive to the industry by balancing benefits with obligations (World Bank 2010). DMUs award the dealers based on qualitative parameters – e.g., quality of advice (Lemoine 2013, 16) – and their performance in the primary and secondary market mostly tracked in league tables (World Bank 2010, 34). Widely diffused among OECD countries,² such rankings aim at enhancing competition among dealers (Lemoine 2013; World Bank 2010, 21). Those banks most actively participating in debt auctions and/or efficiently distributing bonds in the secondary market are likely to be awarded with pecuniary and non-pecuniary benefits. Whereas well-positioned dealers yield the right to enter profitable agreements with the state, less performing ones risk to be excluded from the partnership (World Bank 2010; Reuters 2015). Framed in a self-enforcing arrangement, the parties deserve indeed the right to quit the dealership in case they deem it not being beneficial (Telser 1980). Overall, as arose in an interview with the UK DMU's head of dealing, Martin Duffell, the system for awarding the industry could either be *rigid* or *loose* (UK DMO 2021). The main difference between the two is that the former sets the range of benefits *ex ante* and does not allow re-negotiations *ex post*, whereas the latter allows the parties to revise the agreement according to the dealers' performances and market fundamentals.

Although the dealers' benefits vary across jurisdictions, the most salient ones consist in the participation in syndicated auctions entailing lucrative fees and acting as exclusive counterparty in derivative deals (World Bank 2010). Additionally, dealers could be appointed by the State to participate in projects involving privatizations and

¹ DMUs appoint ancillary market makers to operate in the electronic inter-dealer market – e.g., MTS (Euronext) (MacKenzie et al. 2020; FICC Markets Standards Board 2020).

² Austria, Canada, Czech Republic, France, Greece, Hungary, Ireland, Italy, Japan, the Netherlands, Poland, Portugal (World Bank 2010, 21).

financialization (Preunkert 2020b). Ancillary benefits are non-pecuniary as these improve dealers' reputation or communication with DMU's - e.g., being exclusive trader of government debt or participation in behind-closed doors meetings with debt managers (United Kingdom Debt Management Office 2021, 18; Preunkert 2020b).

2. The system's advantages and disadvantages

The main advantage of a primary dealer system is that it provides the government with ongoing access to capital markets. Entering the partnership, the dealers commit to participate in sovereign debt auctions taking the risk of selling securities to clients. Importantly, the partnership creates a special relation between the government and capital markets allowing the State to leverage on the dealers' marketing power to extensively allocate government debt (World Bank 2010; UK DMO 2021).

Among the disadvantages of establishing a primary dealer system is that it is a less than efficient market structure (Arnone and Iden 2003, 8). Scholars and policymakers argue that appointing a small number of primary dealers³ heightens the risk of collusion in securities auctions (Rieber 1964; World Bank and International Monetary Fund 2001, 166; FICC Markets Standards Board 2020, 7; World Bank 2010, 22). In 2021, the European Commission convicted a group of dealers engaging in collusive schemes in the secondary market for government bonds between 2010 and 2015 (European Commission 2021). Another potential risk borne by the framework is that the dealers could capture the debt management policy at their own advantage (Arnone and Ugolini 2005, 51). In this direction, scholars claim that the partnership leaves institutional room for DMU-dealer collusive transactions potentially triggering negative externalities (Lemoine 2013, 6). By the same token, relying on a theoretical model, Sadeh and Porath (2020) argue that, although outsourcing the DMU signals the government commitment to financial markets, it bears the risk of industry capture. Another issue is moral hazard: given the State's dependence on capital markets, the dealers might opt to systematically behave against the interests of the principal (World Bank 2010, 9).

³ A market structure labelled by the literature as *oligopsony* (Beetsma et al. 2020, 99), that is, 'a market situation in which the demand for a commodity is represented by a small number of purchasers' (Collins English Dictionary 2023).

III. Theoretical literature

1. Agency theory

The principal-agent problem is a theoretical framework with a wide range of applications among the social sciences and beyond. It describes the relationship between the 'principal' and the 'agent', where the former appoints the latter to perform a task in his/her own interest (Grossman and Hart 1983). The framework is apt at describing institutional settings where, operating under uncertainty, the actors aim at efficiently allocating risk (Holmstrom 1979; Grossman and Hart 1983).

Assuming that both parties are utility maximisers and framed in conflicting interests, the agent does not have the incentive to act systematically in the interest of the principal, and vice versa (Jensen and Meckling 1976). For this reason, appointing the agent, the principal incurs agency costs, which, according to the taxonomy outlined by Jensen and Meckling (1976), articulate in three categories: (i) monitoring costs, (ii) bonding costs, and (iii) residual losses (Jensen and Meckling 1976, 5–6).

Suffering from asymmetry of information and uncertainty over the agent's action and characteristics, the principal shall exert monitoring activity to mitigate the risk that the counterparty might behave opportunistically (Jensen and Meckling 1976; Holmstrom 1979).

Additionally, the principal could incur bonding costs to induce the agent abiding by the terms of agreement. The underlying rationale is that such *gifts* would have the effect of fostering reciprocity, preventing the rise of opportunism. As highlighted by the economic literature, the practice of gift-giving helps structuring partnerships by establishing mutual trust (Akerlof 1982; Carmichael and MacLeod 1997; Fehr, Goette, and Zehnder 2009). Although the custom entails the benefit of strengthening relationships, it could trigger adverse effects. A wave of literature prompted by the experimental economics paper by Malmendier and Schmidt (2017) shows that gift-giving could be source of negative externalities for the public good (Johnsen and Kvaløy 2021).

Lastly, residual losses are ancillary costs originating from the conflicting interests inherent in the agency-relationship: the principal must account for additional losses,

as the incentive structure of the agent prevents the latter from systematically maximising the utility of the former (Jensen and Meckling 1976).

2. Incomplete contracts

First developed by Hart and Moore (1988), the theory of contract incompleteness argues that the parties entering an agreement cannot account *ex ante* for all possible *ex post* contingences. Hinge of the theory is that, in long-term transactions, the outcome is subjected to uncertainty affecting the outcome *ex post*. Overcoming this issue, scholars suggest to allow the parties to revise and/or re-negotiate the contract upon realisation of the state of the world (Hart and Moore 1988).

Advancing the theory in incomplete contracts for long-term partnerships, Hart and Moore (2008) show that the parties might behave opportunistically increasing their own payoff at the expenses of the counterparty. Borrowing the language from Williamson (1975), the authors assume that the parties, exercising discretion, could either behave *consummately* or *perfunctorily* (Hart and Moore 2008). Consummate behaviour denotes respecting the clauses of the contract to the letter; instead acting perfunctorily the party does not abide by the agreement and disrupts its win-win spirit. Linking their work to the analysis of agency costs (Jensen and Meckling 1976), the authors introduce the concept of ‘shading’ complementing the theory of bonding costs. Similarly to Jensen and Meckling (1976), ‘shading’ denotes a situation wherein the principal worsens his/her own utility at the benefit of the agent, with the ultimate purpose of inducing the latter to perform (Hart and Moore 2008, 3).

Among its broad field of application, Hart and Moore (2008)’s theoretical framework has been applied by Sadeh and Porath (2020) to describe the DMU’s discretionary behaviour while interfacing with the dealers. Modelling the dealership as a signalling game, the authors find that the DMU’s autonomy enhances the State’s commitment to comply with the dealers’ demands. In particular, the study assumes that behaving consummately, the government experiences an individual loss in favour of the industry’s utility, which, however, increases the government’s reputation towards capital markets. Importantly, such behaviour is labelled as ‘gift’ fostering reciprocity between the parties (Sadeh and Porath 2020, 744).

3. Relational contracts

First theorised by MacNeil (1974), relational contracts are self-enforcing institutional frameworks holding as long as the parties believe these to be mutually beneficial (Telser 1980; Levin 2003). The main feature of relational contracts is that the buyer and the seller enter repeated transactions within a long-term horizon. Depending on the setting, relational contracts embedded in flexibility allow the parties to update the terms of the agreement upon realisations of the state of the world. However, such degree of freedom comes at a cost, as scholars show that the framework might host the risk for collusion and corruption due to their long-term and informal nature (Troya-Martinez and Wren-Lewis 2017; Abbink 2004, 2; Lambsdorff and Teksoz 2004).

An extension of the literature on relational contracts focuses on the role played by uncertainty at shaping their outcome. In particular, research labels relational contracts for complex contracts those agreements whose outcome depends on exogenous factors (Brown, Potoski, and Van Slyke 2010; 2013). Drawing on game theory the authors describe normative solutions to achieve the win-win equilibrium among stakeholders. Reaching Pareto optimality the argument is that the players shall adopt a tit-for-tat strategy (Brown, Potoski, and Van Slyke 2010). The literature on public administration has been focusing on developing theoretical frameworks describing contracts with a stochastic component, as these are increasingly applicable to real-world situations (Brown, Potoski, and Slyke 2016; Brown, Potoski, and Van Slyke 2018). Besides, such theory is apt at describing contractual settings where the parties enter an agreement implying an initial investment (sunk cost), locking them in the relationship due to path dependence - i.e. public-private partnerships (PPPs) (Brown, Potoski, and Van Slyke 2010).

IV. The parties' micro-foundations

1. The dealership as a Prisoner' Dilemma

While the DMU's mandate is to minimise long-run borrowing costs, the dealer's business model aims at maximising operative profits (World Bank 2010; FICC Markets Standards Board 2020). Such asymmetry of intentions makes the parties two dichotomous utility maximisers (Jensen and Meckling 1976). The dealership's principal-agent nature endows the parties with discretionary behaviour allowing them to behave opportunistically. Thus, stemming from the theoretical framework of Sadeh and Porath (2020), the assumption is that the DMU and the dealer could adopt either a *consummate* or *perfunctory* behaviour while performing their obligations. Acting perfunctorily the parties would undermine the contract's win-win spirit maximising their individual utility, coping with the risk of disrupting the partnership. A consummate strategy denotes instead the parties' commitment to abide by the agreement and it comes at an individual cost (Sadeh and Porath 2020, 744).

In detail, acting consummately, the DMU designs a partnership balancing benefits with obligations, and accounts for the dealers' preferences while shaping the debt management strategy – e.g., issuing debt securities with a maturity profile preferred by the industry (World Bank and International Monetary Fund 2001, 175; World Bank 2010; Sadeh and Porath 2020, 743). Conversely, a perfunctory DMU does not make the partnership attractive for the industry, and could formulate the debt management strategy without interfacing with the dealers or supporting the incumbent government's re-election horizons (World Bank 2010; Sadeh and Porath 2020).

On the other hand, a consummate dealer regularly participates in government debt auctions and/or fosters the secondary market to the extent required by the dealership. Instead, behaving perfunctorily, the dealer does not commit to the partnership's obligations, and could engage in fraudulent schemes posing a threat to the integrity of fixed income markets and the reputation of the state (World Bank 2010; NTMA 2021).

The dealership's self-enforcing nature coupled with the presence of institutional room for opportunism allow to frame it in a prisoners' dilemma – see Figure 2.

Figure 2. The dealership as a prisoners' dilemma in normal form

		Dealer	
		Consummate	Perfunctory
DMU	Consummate	+3, +3	0, +4
	Perfunctory	+4, 0	+1, +1

Source: Author's own illustration

Figure 2 illustrates the players' strategic interaction in matrix form. The actors have a strategy set consisting of two actions: either behaving *consummately* (cooperate) or *perfunctorily* (deviate). Payoffs take ordinal values and the outcome entailing the optimal allocation of resources is for both parties behaving consummately – i.e. focal Pareto optimality (Tadelis 2013). In the game's one-shot version, the Nash equilibrium corresponds to perfunctory behaviour (*Perfunctory, Perfunctory*). However, being a relational contract, the prisoners' dilemma repeated version is apt at describing the dealership. Assuming the parties committing to initial cooperation, in case of unilateral deviation, according to game theory, players could retaliate adopting three strategies: (i) grim trigger, (ii) tit for tat, or (iii) limited punishment (Tadelis 2013).

In a dealership, the DMU retains the right to punish a perfunctory dealer by temporarily excluding it from the partnership or its related benefits. In 2015, the Belgian DMU removed Deutsche Bank the status of dealer for failing to abide by the DMU's evaluation criteria – e.g., low performance in government securities auctions (Reuters 2015). And, in 2019, following the French financial regulator's conviction for market manipulation (Autorité des Marchés Financiers 2019), the French DMU temporarily quit its dealership with Morgan Stanley allowing the latter to comply with remedial measures (Agence France Trésor 2020). By the same token, the Irish DMU (NTMA) excluded the dealer Davy, for engaging in fraudulent activities (NTMA 2021; Reuters 2021).

The dealer could punish the DMU for perfunctory behaviour as well. Since, according to the industry, being a dealer is not a profitable business (Dunne 2007; Global Capital 2019; Preunkert 2020b), a bank might leave in case the DMU does not intervene outweighing the losses (World Bank 2010). Another reason triggering the dealer to quit is the DMU adopting an opportunistic behaviour favouring the government's political interests (Sadeh and Porath 2020). In this direction, according

to practitioners, such course of action would ultimately cause the government to lose bargaining power towards the dealers, by ultimately retaining a restricted network of powerful banks imposing their preferences over the debt management policy (Harkness 2006; Jeal 2016).

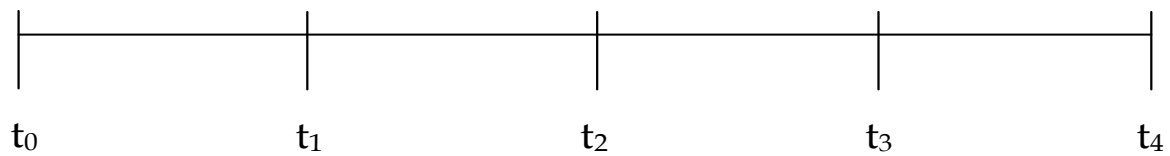
2. The role of exogenous factors

As the dealership's cyclical outcomes depend on uncertainty over the state of the world (World Bank 2010; Sadeh and Porath 2020), while performing, the parties must deal with the effect of factors beyond their control. Negatively affecting the dealers' profits are costs of regulations, volatility in sovereign debt markets, low level of interest rates, and fiscal shocks (Missale 1999; Bloomberg 2015; Global Capital 2016; World Bank 2010). As highlighted by the financial turmoil triggered by the COVID-19 pandemic, a large share of dealers left the partnership due to sovereigns' increasing borrowing needs coupled with low levels of interest rates making it riskier to allocate bonds in the secondary market (Reuters 2020; Financial Times 2020).

On the other hand, exogenous factors affecting the government's borrowing costs are the level of interest rates, inflation and volatility in sovereign debt markets (Missale 1999). As the parties are framed in a dichotomous business model, if the state of the economy reveals to be favourable for one party, it turns to be adverse for the counterparty, and vice versa. For instance, in a world with low interest rates, the dealers will yield lower profits at the advantage of the DMU, which would benefit from lower borrowing costs.

As the partnership's outcome depends on future realisations of state of the world verifiable *ex post*, the DMU-dealer strategic interaction could be modelled as per a complex contracting game, where nature affects the parties' payoffs (Brown, Potoski, and Van Slyke 2010) – see Figure 3.

Figure 3. Timing of the complex contracting game



Source: Author's own illustration

Figure 3 illustrates the timing of the game, consisting of the following rounds:⁴

- At t_0 the parties enter the dealership
- At t_1 the players select their strategies
- At t_2 *nature* selects the state of the world
- At t_3 the payoffs are revealed
- At t_4 the players could retaliate to opportunistic behaviour or resume at t_1

Where, t_1 and t_2 could be swapped, as nature could reveal the state of the economy prior the strategies' selection, thereby affecting the players' course of action.

The assumption is that, the parties' interaction is cyclical, hence, as the payoffs are distributed, the interaction either resumes from t_1 or generates a retaliation potentially disrupting the partnership. In real-world terms, each interaction cycle corresponds ideally to the time-frame spanning from the yearly approval of the debt management strategy,⁵ to the end of the calendar year where stakeholders can infer the profitability of the partnership from business reports.

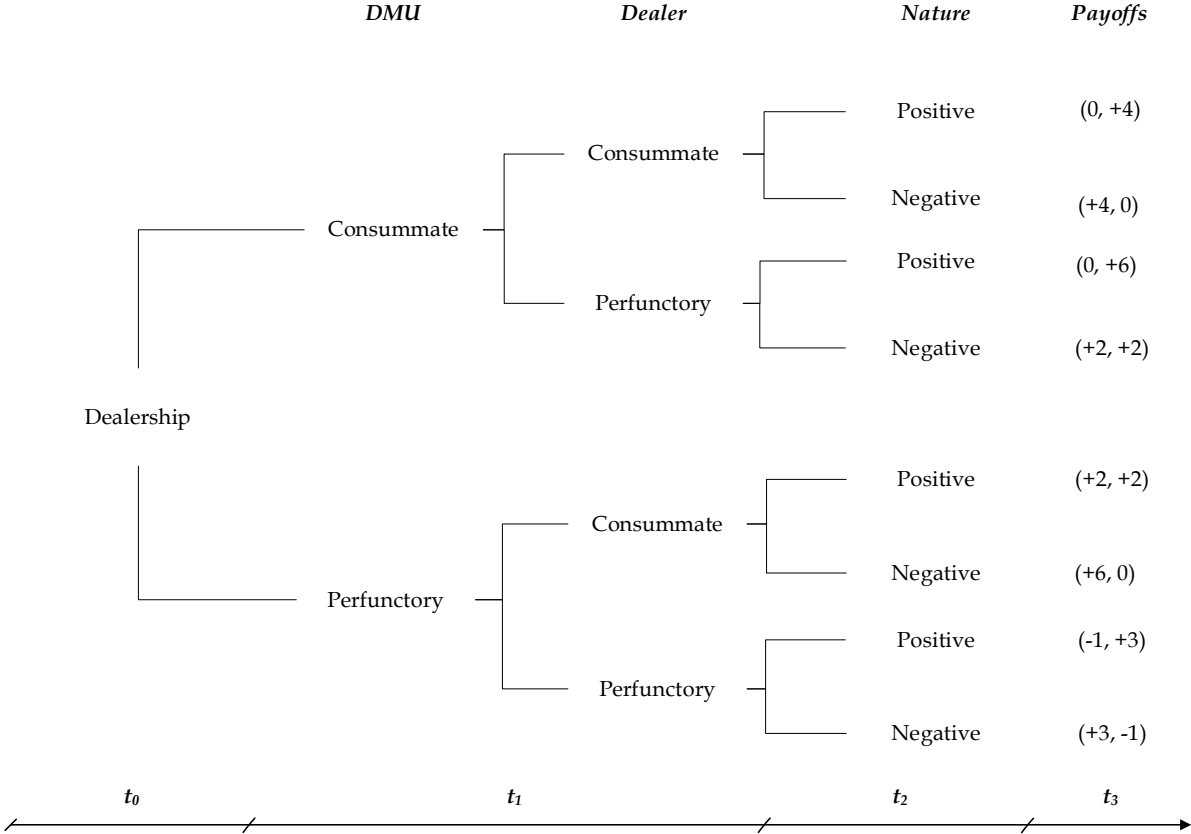
A positive state of the world for the dealers implies an ideal economy with high interest rates and light regulations. Hence, in case nature is favourable for the industry, it is adverse for the government, and vice versa. Reflecting such assumption in the payoffs' structure, when the state of the world is positive (for the industry), the dealers gain two units of payoff more at the expenses of the DMU, and vice versa – see Figure 4. As depicted in Figure 4, although both parties adopt a consummate strategy, they might suffer from a lower payoff due to *ex post* realisations of the state of the economy.

⁴ The timing of the game abides by the existing literature theoretically describing contracts for complex products (Brown, Potoski, and Van Slyke 2010).

⁵ Documents outlining the DMU's debt management strategy are available on institutional websites, see for instance (Ministry of Finance of the Czech Republic 2022; UK DMO 2022).

Given the State’s dependence on global capital markets, the government might have the incentive to re-adjust the payoff structure biased by nature, in favour of the industry, thereby preventing the latter from adopting a perfunctory behaviour.

Figure 4. The dealership as a complex contracting game



Source: Author’s own analysis

Given the dealers’ role of dominance in the partnership turning it into a principal *de facto*, the assumption is that the industry might expect the State to cope with its losses. Such potential scenario is strictly connected to the issue of moral hazard inherent in the dealership: given the sovereign’s funding dependence on capital markets, the dealers might have reason to believe that the government will always rely on them no matter their behaviour (World Bank 2010, 9).

The dealership’s flexible nature allows the parties to re-negotiate benefits and obligations as exogenous factors reveal (World Bank 2010, 14). Therefore, while developing their strategy, the parties must account for the state of the economy as it affects their payoff structure. In particular, the DMU must consider to update its

overall issuance strategy and benefits policy according to economic fundamentals to maintain the dealership's attractiveness. For instance, in a world with low borrowing costs and rising borrowing needs, the DMU might opt to shape its issuance strategy according to the industry's preferences and/or to provide the dealer with benefits without relying on evaluation criteria, an opaque area of governance (World Bank 2010, 32).

Although such behaviour would foster reciprocity guaranteeing the government ongoing access to capital markets, it might trigger negative externalities for taxpayers. As per the theory of *shading* (Hart and Moore 2008), the DMU would transfer a share of its own payoff to the dealer, nudging the latter to perform. In terms of public policy, explaining how such contingency would realise, the theory of regulatory gift provides a feasible framework (Browne 2020). The argument is that the DMU would implement a strategy presented to be beneficial for the public good, revealing instead being in line with the industry interest. Supporting such claim, the upcoming section outlines the DMU's areas of governance wherein such 'gift' could be exchanged and envisions policy proposals mitigating the risk of negative externalities for taxpayers.

V. Agency costs and policy implications

Drawing on the analysis of the parties' micro foundations, the upcoming section provides an overview of the agency costs potentially arising from the dealership accompanied with policy solutions mitigating those. Overall, signing a relational contract with the financial industry, DMUs must account for bonding and monitoring costs. Importantly, the analysis argues that the governance of the dealers' benefits provides the parties with institutional room to enter collusive schemes. Addressing agency costs, the section envisions policy solutions calling for enhanced transparency and supervision.

1. Bonding costs

Within the economy of the agreement, the DMU covers the pivotal role of providing the industry with pecuniary and non-pecuniary benefits fostering the dealership's attractiveness (World Bank 2010). As highlighted by the theoretical framework in Section IV, the parties must develop their strategy accounting for the state of the

economy, as it ultimately affects their utility profile. In practice, being promoter of the partnership, the DMU must update its debt management strategy and awarding policy in function of the realisations of the state of the world. Due to the State's dependence on the industry, in case of increasing borrowing needs, the former might find itself in a position requiring to incur additional bonding costs preventing the dealer from behaving perfunctorily.

Given financial markets' bargaining power and focal point in modern public finance (Blyth 2013; Streeck 2014), the dealers could turn from agents to principals demanding the State to act in their own interest in exchange of ongoing access to global capital markets (Global Capital 2019). Such reversal of the original principal-agent relationship would constitute the risk premium that the government has to pay for its heightened reliance on financial markets.

Backing the realisation of such collusive contingency, the DMU, in frame of its awarding policy, could leverage upon lack of transparency. In this direction, the World Bank describes the criteria for evaluating the dealers' performance as opaque and overall lacking of disclosure (World Bank 2010, 32). Constituting the main rationale for assigning the awards, limited transparency in such area of governance might leave institutional degrees of freedom for arbitrary decision-making. As highlighted by recent cases involving syndicated deals and derivative contracts, the governance of benefits hosts a 'black-box' leaving room for potential collusive transactions to occur.

1.1 Syndications

As revealed by a recent case involving syndicated auctions (Stride 2020), the UK DMU does not have a clear cut rationale for awarding the dealers with syndications and computing related fees. In 2020, a member of the House of Commons Treasury Committee, Mel Stride, alleged that, in frame of syndicated auctions, the DMU did not perform in the interest of taxpayers and prompted an investigation (Stubbington 2020). Among others, the parliamentary inquiry asked for the criteria for calculating syndicated fees. In the reply, the UK DMU chief executive, Robert Stheeman, rejected Stride's allegations and did not disclose a rationale underpinning the fees, stating that these reward the dealers for providing the technological infrastructure underpinning the allocation of government debt securities (Stheeman 2020). As emerged in an

interview with the UK DMU Head of Dealing, Martin Duffell, the fees would be set abiding by a benchmark adopted by DMUs across the EU, whose content is confidential (UK DMO 2021).

Since the 2008 Global Financial Crisis to 2020, the UK DMU paid syndicated fees amounting at €599m (Stheeman 2020). Transparency in the DMU's calculation of the fees is crucial for supporting audit organs monitoring over the fiscal agent's compliance with its remit of acting in the interest of taxpayers.

1.2 Derivative contracts

Another category of bonding costs hosting 'grey' areas of governance has to do with the dealers' appointment as counterparties in derivative deals. Such financial instruments have been used by DMUs for window dressing purpose, a controversial public accounting technique allowing the subscriber country to manipulate the level of debt to GDP ratio (Piga 2001). Widely implemented by Greece and Italy for supporting their access to the European Economic and Monetary Union (Lagna 2016; Piga 2001), independently from their outcome, derivative deals come at a cost for subscribers as the dealers yield a safe source of cash flow from the government (Risk 2003). According to scholars and industry magazines (Trampusch 2015, 122; Risk 2003), evidence on the details of derivative deals is highly confidential as the parties deserve the right to negotiate in a behind-closed-doors setting. Importantly, Risk (2003)'s investigation describes how derivative instruments could act as a mechanism allowing the dealers to charge DMUs for taking excessive credit and market risk exposure.

Corroborating such anecdotal evidence is an Italian case involving the national DMU entering a series of derivative contracts with the dealer Morgan Stanley between 1995 and 2005 (Reuters 2017). In 2017, The Italian Court of Accounts alleged that the derivative contracts were designed overly favouring the counterparty by endowing those with an early termination clause (Corte dei Conti 2019).⁶ Upon the 2009 European debt crisis and related rating agencies' downgrading, Morgan Stanley

⁶ Clause endowing a party with the right to exercise the early termination of a derivative contract. The consequences of early termination are regulated by Section 6 of the International Swaps and Derivatives Association (ISDA) Master Agreement (ISDA 2002).

exercised the clause causing the state a loss of €2.7 billion (Corte dei Conti 2019, 8). Although the process led to the acquittal of the public debt managers involved for lack of jurisdiction (la Repubblica 2022), the case remains highly controversial as it highlights how the State and the industry could enter collusive transactions causing negative externalities. Depending on the dealers' expertise for effective risk management and allocation of sovereign debt, the DMU could accept to design unfavourable clauses making the partnership attractive.

According to the government's degree of reliance on capital markets, the dealers might leverage upon their infrastructural power (Rommerskirchen and van der Heide 2022; Braun 2020) to induce DMUs to engage in derivative deals, ultimately turning the state from principal to agent. The argument is that, due to increasing borrowing needs, the government would have the incentive to sign derivative deals entailing a safe profit dimension for the industry to prevent it from leaving the partnership.

1.3 Policy implications

Mitigating the risk for potential collusive behaviour, the DMU shall disclose to audit bodies (e.g., parliamentary committees) the criteria underpinning the dealers' evaluation as it constitutes the main quantitative rationale for governing benefits. In this direction, being the focal pecuniary incentive triggering the dealers to perform (World Bank 2010; AOFM 2019), DMUs around the world shall disclose to supervisory entities the methodology underpinning the calculation of syndicated fees.⁷

Concerning derivative deals, the DMU should consider to disclose the clauses of the agreement and produce minutes of meetings concerning the negotiation process with the dealers. The collected information would support audit committees' monitoring and evaluation of the potential risks and benefits from entering derivative contracts with the industry. For audit bodies, the proposed rationale is that DMUs shall enter derivative contracts with the industry only if strictly necessary – e.g., hedging currency or interest rate risk – and not for window dressing purposes or as an alternative to deal with rising outstanding debt levels. Indeed, highly indebted countries entering

⁷ As emerged in the interview with the UK DMU, such information is commercially sensitive, thus, this should be disclosed to national body in charge of supervising the DMU in the jurisdiction of interest – e.g., a parliamentary committee (Trampusch and Gross 2021).

derivative contracts could even worsen the sustainability of their debt (Piana 2017; Trampusch and C. Spies 2015).

As a downside of implementing disclosure rules, policy makers shall consider that these might trigger a potential negative effect on the economic attractiveness of the dealership. Indeed, in prospect of lowering profits triggered by disclosure policies, an increasing number of dealers might consider to quit the partnership, restricting government funding options.

Avoiding a scenario of lower liquidity, policy makers shall negotiate with the industry over potential solutions and reach a compromise. For syndications the proposal is to set a key for the calculation of the fees, for instance, directly proportional to the issued amount. Concerning derivative contracts, the situation is more complex: audit bodies, upon screening of minutes of consultations and exchanging views with public debt managers, shall weigh the costs and benefits of entering the deal on a case-by-case basis.

2. Monitoring costs

Coping with the industry's potential perfunctory behaviour, the government shall focus on an efficient design of the primary dealer system and enhancing the supervision of fixed income markets. As highlighted in Section II, a downside of the framework is that a concentrated market structure would increase the likelihood for dealer-dealer collusion schemes to occur (Arnone and Ugolini 2005). Addressing this risk, DMUs with a restricted number of dealers shall consider to enhance competition adding more market participants (Arnone and Ugolini 2005).

Another tool mitigating agency costs would be to enhance monitoring activity in the primary and secondary market for government debt. As pointed out by the FICC in a code of conduct for the participation in fixed income markets, the dealers have a number of conflicting interests in carrying out their task and these could negatively impact the DMU's risk management and borrowing costs (FICC Markets Standards Board 2020, 7-8). Given the size of the market for sovereign debt and countries' increasing borrowing needs, it is necessary to guarantee market's integrity. While evidence for dealer-dealer collusion in auctions is available from the early days of the primary dealer system (Rieber 1964), fraudulent behaviour in form of market

manipulation and collusion in the secondary market has been identified only recently (Autorité des Marchés Financiers 2019; European Commission 2021; 2022; FCA 2022). As DMUs' mandate does not usually entail market supervision,⁸ public debt managers shall coordinate with national and supra-national regulatory authorities to monitor critical risk hotspots. To this end, public debt managers with heightened expertise in fixed income markets shall: (i) schedule recurring meetings with regulatory authorities discussing potential challenges, and (ii) produce reports over the dealers' behaviour in auctions and syndications.⁹

VI. Conclusions

Designing a theoretical framework examining the DMU-dealer strategic interaction, this article provides an overview of the agency costs inherent in the dealership. The study's main insight is that the agreement's contractual nature allows the DMU to adapt its debt management strategy and awarding policy in function of the state of the economy. Although such framework embeds the framework in flexibility, the analysis argues that it might trigger public-private collusion schemes potentially leading to negative externalities. Such contingency would occur given the State's dependence on global capital markets coupled with the presence of 'grey' areas in the DMU's awarding policy.

In particular, under situations wherein the industry suffers from heightened risk exposure, the study argues that DMUs would have the incentive to enter collusive schemes with the industry inducing the latter to perform. Such scenario would occur since DMUs benefit from degrees of freedom in awarding the industry, as: (i) the dealers evaluation criteria are opaque, (ii) the syndicated fees' calculation is undisclosed, and (iii) negotiations over derivative contracts take place behind closed doors. Testing the article's argument, future research shall extend the work towards a

⁸ Outliers are Denmark, Iceland, Norway and the US, where the DMU is located within a supervisory authority (the central bank) (Currie, Dethier, and Togo 2003).

⁹ In frame of the House of Commons Treasury Committee investigation in syndicated auctions, Mel Stride asked the UK DMU whether the dealers' market behaviour was in the interest of taxpayers (Stride 2020). In his reply, the CEO, Robert Stheeman, states that the DMU is not charge of market supervision (Stheeman 2020).

positive dimension by, among others, systematically collecting evidence of the parties' behaviour across states of the economy and government's borrowing needs.

Mitigating agency costs, the study suggests to design and implement disclosure rules enhancing transparency of the DMU's awarding policy. In particular, given the pivotal role of syndicated auctions and derivative contracts in making the partnership attractive, audit bodies shall perform consummate monitoring over such areas of governance. Indeed, as the potential cost of mismanagement of such operations could be significant,¹⁰ policy makers shall consider to introduce transparency policies.

Advancing the still nascent literature in the political economy of sovereign debt management (Lemoine 2013; 2016; Preunkert 2020a; Sadeh and Porath 2020; Rommerskirchen and van der Heide 2022), the study's overarching purpose is to provide policy makers with strategic insights predicting the parties' behaviour. In particular, the article extends the theoretical framework by Sadeh and Porath (2020), by deepening the analysis of the dealers' micro foundations. Moreover, describing how primary dealerships could consciously turn the government from principal to agent, this study contributes to the literature in the infrastructural power of finance (Braun 2020), and, buttresses recent studies applying such theory to sovereign debt management (Rommerskirchen and van der Heide 2022).

As States are experiencing times of overlapping crises triggering increasing borrowing costs and needs (Mackenzie and Sahay 2022; Financial Times 2022), it is of pivotal importance that the state and financial markets engage in a viable relationship necessary for pursuing sustainability of government debt. Within such peculiar institutional context, policy makers shall monitor the parties' behaviour in the areas of governance identified in this study with the overarching purpose of curbing negative externalities for taxpayers. In this direction, future studies shall carry out cost benefit analyses assessing whether the costs of collusion are negligible with respect to the service offered by the dealers.

Casting light on power asymmetries and potential idiosyncrasies inherent in the institutional setting framing the dealership, the expectation is to trigger studies thoroughly analysing how the industry could establish avenues of influence in DMUs,

¹⁰ As already mentioned in Section V, since the 2008 Global Financial Crisis to 2020, the UK DMU paid syndicated fees amounting at €599m (Stheeman 2020).

potentially undermining democratic accountability and public integrity – e.g., lobbying activity and revolving doors (Silano 2022).

Ethics declaration

Conflict of interest

The author does not have conflicts of interest to disclose.

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