IN SEARCH OF THE CORPORATE GOVERNANCE RISK PREMIUM EMBEDDED INTO THE COST OF CAPITAL

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Abstract

The paper proposes to intend the firm as a "nexus of stakeholders", each bearing return-to-risk expectations about the sharing of the corporate performance. All the stakeholders must achieve their own satisfaction through the bargaining of contracts that must be sustainable, i.e., keep both the firm and its stakeholders-network alive in the long term. Governance is intended as the mechanism that gives a solution to the above puzzle. When both market and contracts are complete, an optimal solution can be easily found. But when incompleteness emerges, governance solutions can misallocate the firm performance among the stakeholders. This is the case when incomplete governance emerges. In fact, in incomplete contests, the stakeholders will negotiate the visible-only arguments of their contracts, this way binding also the invisible ones, i.e., those impacting anyway on their ex-post performance. This being the case, a governance risk premium (GRP) emerges in the medium-long run, impacting equity investors' return-to-risk performance, thus incentivizing a governance repackage. Such a GRP depends both on the actual grade of market completeness and the one of contracts as per the risk allocation made through time. The proposed methodology to detect GRP is then applied to the Italian case to test its strength. Results show that GRP inflates 39bp the cost of equity capital with the following break-down: 123bp as basic-GRP from operations which is increased +98bp for the GRP-informative component and reduced -191bp by GRP-managerial component; a GRP-behavioural component +90bp would lead GRP from operations up-to 120bp while sharing 81bp with debt capital leads the final figure down to 39bp (i.e., 123 + 98 – 191 + 90 – 81).

Keywords: Corporate Governance, Corporate Risk, Incomplete Markets, Incomplete Contracts

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1. INTRODUCTION

Think about the firm as a nexus of stakeholders carrying on transactions to be governed through agency contracts. The stakeholders have an economic incentive to keep contracts alive as long as they can benefit from the transactions carried on through the firm. When their incentives disappear, the contract is abandoned. From a business economics perspective, the firm is said to be sustainable (i.e., it is a long-term performer) if the decision by a specific stakeholder to abandon the nexus cannot compromise the nexus as a whole. Indeed, any decision of a single stakeholder about the contracts with the firms is based on the joint consideration of a) the economics of the specific (short-track) transaction and b) those arising from the long-term survival of the nexus.

The nexus of contracts must be optimized as uniqueness, although this may conflict with the optimization of a single transaction: indeed, a benchmarking process between short and long-term benefits. From a financial perspective, such a trade-off might be soundly managed through the concept of present value that includes both the single transaction (i.e., short-term) return and the stream (i.e., long-term) of expected returns. However, present value computation can be misleading if financial markets are incomplete (Allen & Gale, 1994); in such a case, one stakeholder prefers to enter an incomplete contract (Zingales, 1998) to have the opportunity to opt-out the contract in case of deployment of unexpected scenarios. The unfair valuation of the contract may arise from biases in expectations concerning: 1) cash flow discovery and levels; 2) discount rates computation (i.e., embedded risk); 3) time horizon estimations. Each transaction of the firm's stakeholders is decided according to the contingent claims over the previous three elements, while any governance framework refers to their mixture. Inefficient equilibria of the nexus arise from the joint incompleteness of financial markets and contracts.

The mechanisms ruling the nexus are true parts of the corporate governance. In their essence, such mechanisms allocate value between the stakeholders of the firm and contribute to keeping alive the economic convenience to maintain the contracts as active. "Capability to allocate value" means the "ability to solve the trade-off between short and long-term performance" while satisfying the expectations of any stakeholder to keep the nexus alive (i.e., firm sustainability). In case of misallocation, the agents usually react initially by demanding greater returns (i.e., a risk premium is added to discounted rates), while the exit from the contract is decided if the situation cannot be reverted, thus making the contracts unsustainable (with the nexus, as well).

In this paper, we suppose that the previous mismatch is at work and we propose a method to detect the consequent risk premium in the corporate cost of capital. The paper is organized as follows. In Section 2, the theoretical framework of governance risk premium (GRP) esteem is analysed according to the model proposed by Bertinetti and Mantovani (1998). Section 3 depicts the mechanisms of misleading corporate governance according to standard financial valuation techniques; the drivers of the corporate GRP are found and a description of the possible methodology to compute them is proposed. Section 4 deploys a test application of the methodology to a sample of companies listed on the Italian Stock Exchange. The Italian case is an interesting testing area according to: 1) the supposed-biased governance of the Italian firms as generated by their shareholders' concentration; 2) the specificity of its "family capitalism" and "relationships capitalism"; 3) the suboptimal regulatory system on this topic. Section 5 concludes that the higher is the risk premium, the higher should be the opportunity to repackage the governance status by completing the financial markets.

2. LITERATURE REVIEW: INCOMPLETENESS

Incomplete markets, particularly as modeled by Arrow and Debreu (1964), act as a fantastic incentive to develop new corporate finance studies, particularly for privately financed firms. Moreover, its predisposition to consider subjectivity in any agent's decision contributing to the overall market behavior facilitates the joint adoption of models from finance and sound business economics (e.g., Zappa, 1950) too. Corporate governance is the most beneficial topic from the junction of the two approaches (Zingales, 1998).

In an Arrow-Debreu economy, (fair) value is something conceptually different from the market price. They can coincide only in very specific conditions of market equilibrium, i.e., when there are no asymmetries (perfect markets) and all possible future scenarios contribute to the evaluation process (complete markets). Accordingly, gaps between market prices and (fair) values emerge as the result of: 1) the market incompleteness, namely some scenarios do not contribute to the evaluation process; 2) the market imperfections, i.e., the presence of asymmetries; 3) the relative impact of transaction costs as compared to benefits that an individual investor can get.

When the conditions as stated in the Arrow-Debreu model recur, you may intuit the reasons why governance solutions can play an important role in business performance. In fact, the attempts to overcome the deployed imperfections and incompleteness may affect the productivity of the employees as well as those of many other stakeholders. In this effort, however, imbalances can lead to two concatenated effects: 1) contract incompleteness, i.e., the need to re-negotiate transactions (time to time) to adapt the adopted solutions to changes in market equilibriums (Zingales, 1998); 2) excess volatility as the consequence of the endogenous instability in the processes of wealth accumulation in uninformed markets (Mantovani, 2012).

This may lead the corporate stakeholders to negotiate revisions either for the (long-term) economics of the relationships with the firm or the risk-sharing clauses which characterize them. The corporate governance framework as adopted by the company will contribute to reducing/ increasing the imbalances arising from re-negotiations. Accordingly, the *governance* solutions may inflate the corporate cost of capital in incomplete markets

through specific risk premiums and reduce the enterprise value below the potential one. The existence of a corporate GRP can also produce misallocation of wealth among the firm's stakeholders, by the absorption of excessive amounts of the overall corporate wealth to specific stakeholders. The missing value along with the misleading allocation of wealth will incentivize a governance repackage through further re-negotiations of contracts regulating the stakeholders' contribution to the firm.

Odat et al. (2021) examine the impact of corporate governance mechanisms on a firm's cost of equity. The corporate governance mechanisms they examined consist of board size, board independence, CEO duality, multiple directorships held by board members, and board political influence. To accomplish the study objective, 210 firm-year observations for manufacturing companies listed on Amman Stock Exchange (ASE) in the period 2014–2018. Their results reveal that CEO duality and board political influence negatively affect the cost of equity, while there is no significant effect of board size, board independence, and multiple directorships on the cost of equity.

Similarly, Hu et al. (2022) investigate whether and how managers' overseas experience affects a firm's cost of equity capital. They document a negative association between managers' overseas experience and the cost of equity capital. Further analyses show that chief executive officers (CEOs) with foreign experience have a more significant impact on the cost of capital than non-CEO managers with foreign experience and that managers' overseas work experience has a more significant impact on the cost of capital than their overseas education.

Bertoncelli et al. (2021) analyse the relationship between corporate governance quality and the cost of equity capital for the Italian case by regressing the index of quality of corporate governance on the cost of equity capital. They found that no significant correlation. The index for the quality of the governance is based on: board size; board independence; the existence of internal committees instead of the independence of board committees; CEO duality.

The above approaches focus mainly on the relationships between the proxies of the adopted governance solutions and the cost of capital. Accordingly, they focus on the mechanics of the governance and miss to consider the imbalances which may ignite any decision to change the governance framework. Indeed, they miss to consider the other side of possible impact: the risk and the consequent risk-premia. Yildrim and Allen (2021) propose a methodology to verify the relationships existing between the organizational capital (OC) and the systematic risk. By decomposing OC, they conclude that shareholders may earn an additional annual 4.6% systematic risk premium. In this path, Hatane et al. (2019) examine the control capability of corporate governance towards firm risks for a sample of Indonesian firms in agriculture, mining, and property industries. A similar study is proposed by Wan et al. (2015) for the Canadian case, while Njeri et al. (2017) investigate the Kenyan case. Zhu and Feifei (2014) run the investigation over an international sample, showing that firms with good corporate governance are consistently associated with both lower cost of equity and cost of debt capital.

A different perspective is adopted by Andries et al. (2020) who assess the impact of corporate governance on the risk investment behavior of firms and its implications on firms' growth rate. Wamba et al. (2018) explore the impact of the mechanisms of corporate governance on the volatility of companies' financial profitability. Boncori et al. (2016) analyze the corporate commitments to stakeholders over time in a European comparative study between 2000 and 2010: as the authors declare, their findings are manifold but principally highlight the structuring dimension of both the shareholder-oriented and stakeholder-oriented models of CG and the role of micro-economic factors in explaining the changing and varying corporate commitments.

According to Bertinetti and Mantovani (2009), there are four possible different components contributing to the risk premium generated by an incomplete governance:

1. The basic component, due to the ex-ante distortions of the negotiation processes carried out in incomplete (although efficient) markets. This component is usually positive since awareness of incompleteness generates further expected rewards.

2. The informative component, due to the information asymmetries embedded anyway in the ex-ante negotiations, has no predictable algebraic sign (Mantovani, 2012).

3. The managerial component, due to the aim of an insider stakeholder to deal with its contracts by referring to the fair value or to the market value of the firm. No sign can be predicted.

4. The behavioral component, due to the existence of options given to some stakeholders to negotiate again their value share in an ex-post framework. No sign can be predicted.

The authors define "incomplete" as the governance framework that prevents to split down analytically the determinants of the risk premium. In fact, the impossibility to determine the sources of governance misallocation prevents to modify of the underlying agency agreements, thus keeping incomplete the governance mechanisms. In the case of a misallocating governance mechanism, the existence of excess returns generates no increase in the value of the firm, since a GRP emerges in order to protect the stakeholders from unfair value allocations.

Bertinetti and Mantovani (2009) proposed the theoretical model, only, with possible application to the state-preference theory. This makes it difficult to find out a practical implementation given the necessity to fix the scenarios (i.e., states of the world) to discover equilibrium prices. However, the Arrow-Debreu model indicates us an important truth to be used as a tool to discover a methodology: the governance puzzle cannot be solved with the sole intention to eliminate market inefficiencies (e.g., asymmetric information, transaction costs, etc.), but mainly to complete markets. In fact, the risk premium due to corporate governance distortions can mainly incentivize economic agents to complete financial markets. The higher the risk premium, the higher the abnormal return arising from the traceability of incomplete contracts.

Accordingly, here is our research question for this paper:

RQ: Is there a sound (but applicable) methodology to estimate GRP (i.e., to signal a misallocating governance existence) and its drivers (i.e., to infer about governance incompleteness)?

3. RESEARCH METHODOLOGY

Having a quantitative measure of a specific risk premium sourcing from inefficient governance choices should help agents to negotiate contracts as completely as possible. The search for effective solutions is also useful, in an ex-post environment, to control the agency spill-overs.

An applicable methodology requires a practice based on data available through standard financial information services.

Our proposal moves from the linear relationship between risks and expected returns in financial markets as enacted by the capital asset pricing model (CAPM). The security market line (SML) is the most immediate evidence of such a linearity, provided that expected returns $[E(R_i)]$ connect to the risk (i.e., beta, β_i) according to the SML equation.

$$E(R_i) = R_f + \beta_i\left(R_m - R_f\right) \quad (1)$$

where, R_f is the risk-free rate and R_m is the market return. According to the CAPM linearity principle, the expected return and the systematic risk of a portfolio must equal the weighted average figures of both $[E(R_i)]$ and β_i of its composing assets. If this happens, the SML relationship applies to the portfolio too, thus equilibrium exists; otherwise, arbitrages can be incentivized. We propose to apply the linearity concept of CAPM to the relations existing between the different stakeholders of the firm. In fact, each stakeholder relates to the firm through a specific agency contract providing both returns and risks. Similarly, to SML, the return-to-risk ratio makes each agency contract convenient for the single stakeholder, while the portfolio of the contracts is to be considered by the firm. If fairly equilibrated, we should expect a linear relationship among return-to-risks of the contract to exist; otherwise, there is room to improve the portfolio performance through rebalancing (i.e. changing the stakeholder relationships).

The portfolio of the agency contracts represents the nexus of the risk-sharing choices in the firm as proposed in the Value–Risk–Chain model by Mantovani et al. (2013). The distinguished contribution of such a paper is the proposal of an integrated risk analysis at a corporate level by referring to the well know value chain model. The authors demonstrate that risks could be also negotiated through the chain, alongside the margins arising from corporate processes as suggested by the standard model. The twin negotiation of margins and risks through the value chain suggested us that a return-to-risk could be used while considering the chain connections as the composing portfolio. Accordingly, we replace: 1) the financial assets composing a portfolio with the productive inputs as referred to each stakeholder; 2) the weights of the portfolio with those arising from the business decisions on the mix of the inputs. Similarly, to CAPM conclusions, if equilibrium exists, the linearity condition should let us compute the cost of equity capital through the portfolio and find the same figures that can be observed directly in the financial markets. Otherwise, the gap may proxy the GRP level.

3.1. The case of the steady-state company

This is the simplest case. In fact, the mix of inputs is fixed and defined by the structure of the income statement. The composition of various categories of costs and revenues represents the nexus of the risk-sharing agreements between stakeholders, against the risk embedded into the turnover of the company. If any line of cost or income can be associated with specific stakeholder groups, then their percentages vs revenues reflect the mix of the adopted governance.

The following equations analytically gave representation. The components of Eq. (2) represent the interests of specific stakeholders, as represented in Table 1.

$$RDV = CVF + CFF + FLI + INV + OFN + TAX + RNP \quad (2)$$

Table 1. Income statement description and stakeholders' reference

	P&L line	*Referring stakeholders*
RDV	Corporate turnover	Clients and markets
CVF	Variable costs from suppliers	Suppliers fully sharing the risk
CFF	Fixed costs from supplies	Suppliers with reduced risk sharing
FLI	Cost of wages	Employees and workers
INV	Investments (= depreciation)	Managers
OFN	Interest paid (net)	Banks and other debt-capital suppliers
TAX	Tax burden	Public authorities
RNP	Net income	Shareholders

Dividing Eq. (2) by *RDV*, you find the weights depicting the adopted governance solution.

$$1 = CVF + CFF + FLI + INV + OFN + TAX + RNP \quad (3)$$

Eq. (3) uses lowercase letters to facilitate the identification of the same stakeholders as in Table 1 when their relative contribution to the business model is depicted.

The steady-state case has an easy and stable solution because the absence of growth facilitates the ex-ante negotiation of contracts. Like in the split of revenue, their present value (*W*) must be split between corporate stakeholders, as depicted in Eq. (4).

$$W(RDV) = W(CVF) + W(CFF) + W(FLI) + W(INV) + W(OFN) + W(TAX) + W(RNP) \quad (4)$$

In Eq. (4), the last three summands determine the gross value of total assets along with their allocation between debt capital, equity capital, and tax liabilities, i.e., the items being traditional topics of theories of the corporate financial structure. In fact, according to Eq. (4), we can conclude that:

$$(OFN) + W(TAX) + W(RNP) = B + S + W(TAX) \quad (5)$$

where, B is the market value of debt and S is the market value of equity. And, simplifying for *W(TAX)*.

$$W(OFN) + W(RNP) = B + S = V \quad (6)$$

Eq. (6) is useful to build up our methodology, since it highlights data which can be more easily noticed from market values [B and S] to be opposed to economic (estimated) values [*W(OFN)* and *W(RNP)*] to check the status of the alleged incompleteness of the financial markets. In fact, if financial markets are complete and perfect, then Eq. (6) is always satisfied. On the contrary, market incompleteness or imperfection would be signaled by an unbalanced Eq. (6) as here below.

$$W(OFN) + W(RNP) = W \neq B + S = V \quad (6a)$$

Substituting the results of Eq. (6) and Eq. (6a) into Eq. (4) and rewriting it, it is possible to determine the following equation:

$$W(RDV) - W(CVF) - W(CFF) - W(FLI) - W(INV) - W(TAX) = W = V = B + S \quad (7)$$

$$W(RDV) - W(CVF) - W(CFF) - W(FLI) - W(INV) - W(TAX) = W \neq V = B + S \quad (7a)$$

The connections between Eq. (7) and Eq. (2) are made by the degrees of risk and the premia included into the specific discounting rates. For the steady-state case, Eq. (8) gives analytics in case of complete and perfect market equilibrium.

$$(RDV/r_{rdv}) - (CVF/r_{cvf}) - (CFF/r_{cff}) - (FLI/r_{fli}) - (INV/r_{inv}) - (TAX/r_{tax}) = W = B + S = V \quad (8)$$

If a perfect equilibrium the discount rates for any stakeholder should be determined according to the fundamental rule of the CAPM, namely:

$$r_i = r_f + \beta_i \times ERP \quad (9)$$

If you divide Eq. (8) by *W(RDV)*, you can find the image of the governance as projected on the value of the firm by the negotiations of stakeholders.

$$1 - cvf^* - cff^* - fli^* - tax^* - inv^* = W/W(RDV) = B/W(RDV) + S/W(RDV) = V/W(RDV) \quad (10)$$

It is worth noting that figures with an asterisk as reported in Eq. (10) differ from those similarly named in Eq. (3). The relationship between the two indicators depends on the absolute level of the risk-free rates and, moreover, by the gaps existing between β_i characterizing any single stakeholder and the β characterizing sales revenues. Indeed, such gaps are the evidence of the risk-sharing agreements as embedded into the governance solution adopted by the firm. In fact, we extend the bargaining of margins (i.e., standard value chain model) toward the one of the return-to-risk over time; a more dynamic approach of the stakeholders' relationships. By focusing on margin negotiations, only, the corporate risk is supposed to be equally shared among any stakeholder; a very far-from-reality hypothesis that an exasperated short-termism, in corporate management makes realistic. If we accept the more realistic idea that stakeholders 1) differentiate each other because of different risk bearing and 2) they will negotiate contacts shaping appropriate return-to-risk profiles over time, than we also must consider the need for the company to achieve an equilibrated nexus (portfolio) of stakeholders through an adequate corporate governance framework. Differences between risks as negotiated by a single stakeholder and the corporate one must find a reliable governance solution. For example, for suppliers of variable costs, *CVF*, the relation may be summarized as follows:

$$\frac{cvf^*}{cvf} = \frac{r_f + \beta_{rdv} x ERP}{r_f + \beta_{cvf} x ERP} \quad (11)$$

In Eq. (11) the (corporate) risk of revenues, β_{rdv}, and the risk as embedded into the contract of the specific stakeholder, β_{cvf}, are evidence of the gap existing between the long-term insertion of the stakeholder into the nexus (*cvf**) and the negotiation of margins, only (*cvf*). The former relates to corporate governance, and the latter relates to negotiations, only.

Similar computation can be done for any productive factor contributed by each stakeholder. However, Eq. (11) suggests an interesting topic that has been neglected in studies of governance: the relative composition of P&L flows is a detection of the actual governance if, and only if, it is assumed that the systematic risk that characterizes the company revenues is homogeneously charged on all productive factor, i.e., never! In other words, when negotiation focuses on flow-splitting without considering risk-splitting, the governance gets incomplete because of instability due to the gaps between the weights of flows vs. weight of values.

Still, in an equilibrium framework, the linearity of Eq. (9) compared the results of Eq. (10) should ensure that:

$$\beta_{rdv} - (cvf^*)\beta_{cvf} - (cff^*)\beta_{cff} - (fli^*)\beta_{fli} - (inv^*)\beta_{inv} - (tax^*)\beta_{tax} = (B/V)\beta_B + (S/V)\beta_S \quad (12)$$

Supposing β_{rdv} as exogenous, Eq. (12) clarifies that the value of any β can be determined only according to all the others, i.e., into a process of governance negotiation. This same conclusion gives us insights about the estimation methodology to adopt. In fact, if you manipulate Eq. (12) to have β_S as unknown and compute it by entering the (fair) values of all other betas.

$$\beta_S = [\beta_{rdv} - (cvf^*)\beta_{cvf} - (cff^*)\beta_{cff} - (fli^*)\beta_{fli} - (inv^*)\beta_{inv} - (tax^*)\beta_{tax} - B/V)\beta_B](V/S) \quad (12a)$$

Therefore, it is possible to compare the results of computations with data obtained through financial market data by using the traditional formula.

$$\beta_{S^*} = Cov\,(r_S, r_M)\,/\,Var(r_M) \quad (13)$$

In case of perfect equilibrium $\beta_{S^*} = \beta_S$ Otherwise, by subtracting figures from Eq. (13) from those determined by Eq. (12a) the GPR is found as shown in Eq. (14).

$$GPR = (\beta_{S^*} - \beta_S) \times ERP \quad (14)$$

Table 2 shows a numerical example comparing governance results obtained by using concepts introduced in Eq. (3) and Eq. (10). The stakeholders are the same as in Table 1 and supposed to be linked to specific productive inputs. The risk-free rate is supposed 4% while *ERP* = 6%.

Table 2. Linearity of β and governance choices in the steady state case

		Flow	*% RDV (Eq. (3))*	*β*	*r*	*W*	*% W(RDV) (Eq. (10))*
Turnover	*RDV*	1000	100,00%	1,00	10,00%	10.000,00	100,00%
Variable costs	*CVF*	300	30,00%	1,40	12,40%	2.419,35	24,19%
Contribution margin		700	70,00%	0,87	9,23%	7.580,65	75,81%
Fixed costs	*CFF*	100	10,00%	0,80	8,80%	1.136,36	11,36%
Added economic value		600	60,00%	0,89	9,31%	6.444,28	64,44%
Salaries	*FLI*	300	30,00%	0,50	7,00%	4.285,71	42,86%
EBITDA		300	30,00%	1,65	13,90%	2.158,57	21,59%
Depreciation	*INV*	100	10,00%	2,00	16,00%	625,00	6,25%
EBIT		200	20,00%	1,51	13,04%	1.533,57	15,34%
Interests	*OFN*	40	4,00%	0,30	5,80%	689,66	6,90%
Pre-tax profit		160	16,00%	2,49	18,96%	843,91	8,44%
Taxes	*TAX*	64	6,40%	2,49	18,96%	337,56	3,38%
Net Income	*RNP*	96	9,60%	2,49	18,96%	506,35	5,06%

Table 2 clarifies that should negotiations being based on flows only, the resulting governance would result biased, due to un-negotiated risk-sharing agreements: in this case, contracts are incomplete for sure. In fact, a 30% share of revenues for workers equals 42.86% share of their value; while 30% of revenue share for suppliers of variable costs means 24.19% (only) of share of value. Clearly, the financial market incompleteness does contribute to prefer flows-based-negotiations, being unpriced several pieces of value (e.g., workers, fixed costs, etc.).

Perfect overlap of shares (of flows and of value) will be reached only in the case of uniform risk-sharing agreement. Table 3 depicts this extreme situation, using flows in Table 2. The uniform risk-sharing means that betas are identical just like the systematic risk embedded into revenues of each stakeholder. Clearly, such an agreement means the easiest possible governance: all corporate stakeholders get partners. It is to be noticed that while no figures in Eq. (3) are changed, dramatic changes take place in figures of Eq. (10).

Table 3. Linearity of β and uniform risk allocation in the steady state case

		Flow	*% RDV (Eq. (3))*	*β*	*r*	*W*	*% W(RDV) (Eq. (10))*
Turnover	*RDV*	1000	100,00%	1,00	10,00%	10.000,00	100,00%
Variable costs	*CVF*	300	30,00%	1,00	10,00%	3.000,00	30,00%
Contribution margin		700	70,00%	1,00	10,00%	7.000,00	70,00%
Fixed costs	*CFF*	100	10,00%	1,00	10,00%	1.000,00	10,00%
Added economic value		600	60,00%	1,00	10,00%	6.000,00	60,00%
Salaries	*FLI*	300	30,00%	1,00	10,00%	3.000,00	30,00%
EBITDA		300	30,00%	1,00	10,00%	3.000,00	30,00%
Depreciation	*INV*	100	10,00%	1,00	10,00%	1.000,00	10,00%
EBIT		200	20,00%	1,00	10,00%	2.000,00	20,00%
Interests	*OFN*	40	4,00%	1,00	10,00%	400,00	4,00%
Pre-tax profit		160	16,00%	1,00	10,00%	1.600,00	16,00%
Taxes	*TAX*	64	6,40%	1,00	10,00%	640,00	6,40%
Net Income	*RNP*	96	9,60%	1,00	10,00%	960,00	9,60%

The utopian results in Table 3 are a clear proof about the impossibility to think about the negotiation of corporate governance equilibrium without dealing the risk-sharing agreement. In a more realistic framework, revenue-risks are indeed allocated between stakeholders through governance just like asset-risks allocation between equity and debt capital is made through capital structure choices. Accordingly, we conclude that the beta of equity implies governance choices even in the case

of unlevered companies. Indeed, governance act as an operating leverage component of the business model, which the financial leverage inflates, by amplifying even the impact of inefficient governance solutions.

Computed betas can be now compared with the observed ones. Supposing the market beta of shares in the previous example (Table 2) to be 2.73, the GRP equals 144bp (i.e., 2,73 - 2,49 = 0.24 beta-gap times 6% *ERP*). Should this be the case, the market is supposing the equity share of corporate risk too high if compared with the one obtainable from other governance solutions. A risk premium is then added through inflated beta. The higher beta reduces the prices of shares, incentivizing buy-out of the company and governance re-negotiation to achieve fair value and capital gains. It is interesting to observe that the GRP can be even negative. In this case, the market is supposing that the risk-sharing agreements are very favourable to equity, thus overvaluing shares. The lower is the real-market efficiency the longer will be the persistence of a negative GRP.

3.2. The case of a growing company

By removing the steady state assumption, negotiations about governance get more and more complicated due to the complexity introduced by corporate growth estimation and its sharing among the stakeholders. In case of growth, the negotiated contracts will be even more incomplete since the information risk on growth-estimation stimulates stakeholders to reserve the option to re-negotiate the deal again, ex-post, according to realized performances. In this case, the governance solution in Eq. (3) is defined by adding the time suffix for any single stakeholder factor that contributes to the composition of revenues as in Eq. (3a).

$$1 = cvf_t + cff_t + fli_t + inv_t + ofn_t + tax_t + rnp_t \quad \forall t: 1 < t < \propto \tag{3a}$$

Eq. (3a) tells us how difficult is to negotiate in this case, since any item is indeed a time-vector. You need to consider both the dynamics of the variables for which the counting takes place and the possible time-correlation phenomena embedded in real contracts.

In this context, the measurement puzzle is complicated as well, because of the choice of valuation methods that best fit to track the actual development path of the single variable with time (Guatri & Bini, 2005). At practical level, the most adopted methods estimate separately the values generated by the steady state status and those attributable to the growth opportunities. The choice of the estimation method for the latter is related to their qualities (Mantovani, 2007). Models are usually grouped into three families: 1) the steady-growth ones (or expansions, as clearly discussed in Massari-Zanetti, 2008); 2) the discontinuous-growth ones (or growing option, as discussed in Damodaran, 2006); 3) those based on the skill cultivation (or competence value as in Mantovani, 2015). The three clusters of models differentiate according to the way growth is generated and, consequently, on the return and risk profiles it associates.

The presence of a dynamic source of value (i.e., growth) generates a higher value of the option to renegotiate the governance pacts between the various stakeholders. Clearly, the fair value of this option depends, inter alia, on the complexity of the growth-paths as depicted by the three families of methodologies descripted above. Here further, we initially propose some considerations focusing on the first family of methods in the aim to fix a first dynamic model for assessing at least the managerial component of the GRP. In fact, the adoption of the steady growth model can offer some insights leading to some interesting conclusions.

In terms of expansion, any value depends on the expected growth rate ("g") of each variable. In the original steady-growth model, growth must be unique, i.e., the same rate "g" should apply to all relevant economic variables to describe the company. This hypothesis has often generated considerable criticism on the model itself; indeed, in our approach it is very useful since we can compare the "homogeneous growth" solution with the "differentiated growth" rates case for each stakeholder/productive factor. The resulting gaps are strictly connected to the governance deal among the stakeholders.

The basics of the methodology of estimating GRP as illustrated for the case of steady-state do not change. We add the comparison of the sharing ratio on flows with those on values estimated both in steady-state and steady-growth context. It moves from the estimation of *W(RDV)* to be determined according to its specific growth rate, as shown in Eq. (15).

$$W(RDV) = RDV_1/(r_{rdv} - g_{rdv}) \tag{15}$$

The economic values of all the other inputs can be done by adopting the same steady-growth approach while changing the figures to be used in Eq. (15). Special attention is to be given to the suffix "1" added to the figure of the flow to be inserted into the equation. In fact, the growth path requires inputs to be added in time forward; then, the governance puzzle includes the commitment for any stakeholder to input such a requirement. The economic incentive to keep on a specific configuration of the governance is strongly related to the gap existing between the increased value and the increasing commitment.

A clear example of this concern is about capital investment. To let EBITDA increase, more productive capital is required (the year) before the growth happens: to have a X% growth in year-2, a X%-more investment is required in year-1. The puzzle complicates even more when the input may be supplied by different stakeholders: their governance status defines the share agreement that may impact over their specific growth rate (i.e., another piece of the puzzle of the corporate governance). In the case of capital requirements, both debt and equity can supply funding; the leverage ratio constraint may not match with targeted X% growth.

Table 4 helps to explain previous concepts by showing computations as developed in Table 2, but assuming a (homogeneous) 2%-steady-growth per year. The initial input figures (P&L at time 1, betas and discount rates) remain the same as in Table 2, at least at the EBITDA level.

Table 4. Homogeneous steady-growth case and value allocation gaps

		Flow	*% RDV (Eq. (3))*	*Invest*	*Flow*	*g*	*g-gap*	*β*	*r*	*W*	*% W(RDV) (Eq. (10))*	*W-gap vs. steady-state*	*Δ% W vs. steady-state*
Turnover	*RDV*	1000	100,00%		000,00	2,00%		1,00	10,00%	12'500,00	100,00%		25,00%
Variable costs	*CVF*	300	30,00%		300,00	2,00%	0,00%	1,40	12,40%	2'884,62	23,08%	-1,12%	19,23%
Contribution margin		700	70,00%		700,00	2,00%	0,00%	0,88	9,28%	9'615,38	76,92%	1,12%	26,84%
Fixed costs	*CFF*	100	10,00%		100,00	2,00%	0,00%	0,80	8,80%	1'470,59	11,76%	0,40%	29,41%
Added economic value		600	60,00%		600,00	2,00%	0,00%	0,89	9,37%	8'144,80	65,16%	0,72%	26,39%
Salaries	*FLI*	300	30,00%		300,00	2,00%	0,00%	0,50	7,00%	6'000,00	48,00%	5,14%	40,00%
EBITDA		300	30,00%		300,00	2,00%	0,00%	2,00	15,99%	2'144,80	17,16%	-4,43%	-0,64%
Depreciation	*INV*	100	10,00%	12,50	112,50	2,00%	0,00%	2,00	16,00%	803,57	6,43%	0,18%	28,57%
EBIT		200	20,00%	12,50	187,50	2,00%	0,00%	2,00	15,98%	1'341,22	10,73%	-4,61%	-12,54%
Interests	*OFN*	40	4,00%	13,79	26,21	2,00%	0,00%	0,30	5,80%	689,66	5,52%	-1,38%	0,00%
Pre-tax profit		160	16,00%	-1,29	161,29	2,00%	0,00%	3,79	26,75%	651,57	5,21%	-3,23%	-22,79%
Taxes	*TAX*	64	6,40%		64,00	2,00%	0,00%	3,79	26,75%	258,54	2,07%	-1,31%	-23,41%
Net Income	*RNP*	96	9,60%	1,29	97,29	2,00%	0,00%	3,79	26,75%	393,03	3,14%	-1,92%	-22,38%

The figures for investments include 2% more of capital requirement since the investments to replace steady capital must be increased by 12.50 units[1] (in year 1) to let growth start (in year 2). To have a 2% growth in interests paid, the financial creditors must fund 13.79 units[2] more. Since the debt capital flow exceeds the required capital to invest, the difference contributes to the flow-to-equity. This unexpected result is due to figures of debt capital (i.e., 689.66) higher than those of the replacement capital before the growth is triggered (i.e., 625). This result is due to the high net present value of the productive investments even in the steady state framework (according to tab.2, their value is 2'158.57 and the Q-ratio = 3.45, i.e., 2'158.57/625.00).

Table 4 let us compare the shares of *W(RDV)* for each stakeholder with those of Table 2, along with the %-wealth-changes due to the homogeneous growth and the governance puzzle. The evidence is clear: homogeneous distribution of growth do not fit with homogeneous distribution of value. The reason is clear as well: the non-uniform distribution of risk due to the governance deal impacts on the discount rate ("r"), therefore over-impacts on the ("r-g") determinant of value. The conclusion is thus clear: the governance negotiation must jointly refer to the sharing of flows, of risks, and the allocation of the growth rate inside the corporation. Should this not happen, the GRP emerges to incentivize a governance repackage.

The figures about relative capital flows of debt and equity show how complex can be the impact of growth on the governance puzzle. The nexus of the leverage ratio and the huge value creation process do impact on the capital coverage, given the uniform growth rate hypothesis: (less-risky) debt capital is required to supply more liquidity than expected to achieve the same 2% growth rate of (less-liquid) equity capital. This means that all changes of value as depicted in Table 4 are not ununiform according to figures only, but even for the qualitative breakdown of inputs to be inserted (e.g., liquidity degree of debts and shares). Still, the case of debt capital can be useful to understand the point: the debt value in Table 4 is unchanged vs. the steady-state case of Table 2 since the present value of liquidity to be inserted in the next periods exactly equals that of increased inflows (i.e., NPV is zero for debt-capital).

This allows to have 2% growth in interests to be paid (and liquidity supply) but a zero change of debt-value, i.e., a decline (-1.38%) of the *W(RDV)* share as increased by the growth. To change this state of growth, a different liquidity contribution is required by shareholders, or a different interest rate (and growth share?) is needed: still a stakeholder-nexus repackage, anyway.

Similar evidence can be found out at EBITDA-level: only -0.64% of value is reported due to higher value repackage between suppliers and employed people. The greater value of salaries in Table 4 is to be compared with the inputs requirements (similarly to liquidity puzzle in debt capital). Two solutions can be proposed: increase either productivity or the number of employers. Still a qualitative component of the governance puzzle contributing to GRP.

Table 5a reports a possible (but not unique) solution that could lead to the same distribution of the percentage quotas between the operating inputs (i.e., EBIT-level) as depicted in Table 2 so that all of them may have a 25% increase of value.

In the proposed solution, positive gaps in growth are to be given to productive inputs with higher (than turnover) betas, such as suppliers (of variable costs). The inputs with a lower risk allocation may have attributed lower growth rates. This numerical evidence may contribute to resolving the puzzle of deciding the qualitative characteristics of the specific inputs.

But the evidenced rule does not seem to work for investments, since their supposed beta (= 2.00) is higher than the risk embedded into EBITDA (= 1.65), the flow that will sustain their value in the future.

You can discuss a lot about the credibility of such a gap; anyway, you must consider such a gap due the information risk existing at the time of the investing decision. Anyway, when risks are so asymmetric, the lower growth given to the riskier input (capital) signals the requirement to have higher productivity to sustain the governance nexus for the corporate growth. Indeed, Table 5a let us understand the existence of a "matrëška-effect" in combining the nexus of stakeholders through governance at operating level, at least.

[1] Being beta = 2 the specific discounting rate is 16% (see Table 2). In a steady state framework the replacement value of productive capital is 625 (i.e., 100/0.16). The capital for a 2% growth is then 12.50 (i.e. 625x2%).
[2] Being beta of debt = 0.30 only the cost of debt is 5.80% and its market value 689.66 (i.e., 40/0.058). The debt capital required for a 2% growth (of interests paid) is then 13.79 (i.e., 689.66x2%).

Table 5a. Repackaged steady-growth case to avoid operating gross value allocation gaps

		Flow	% RDV (Eq. (3))	Invest	Flow	g	g-gap	β	r	W	% W(RDV) (Eq. (10))	W-gap vs. steady-state	Δ% W vs. steady-state
Turnover	RDV	1000	100,00%		1000,00	2,00%		1,00	10,00%	12'500,00	100%		25,00%
Variable costs	CVF	300	30,00%		300,00	2,48%	0,48%	1,40	12,40%	3'024,19	24,19%	0,00%	25,00%
Contribution margin		700	70,00%		700,00	1,79%	-0,21%	0,87	9,18%	9'475,81	75,81%	0,00%	25,00%
Fixed costs	CFF	100	10,00%		100,00	1,76%	-0,24%	0,80	8,80%	1'420,45	11,36%	0,00%	25,00%
Added economic value		600	60,00%		600,00	1,80%	-0,20%	0,89	9,25%	8'055,35	64,44%	0,00%	25,00%
Salaries	FLI	300	30,00%		300,00	1,40%	-0,60%	0,50	7,00%	5'357,16	42,86%	0,00%	25,00%
EBITDA		300	30,00%		300,00	2,20%	0,20%	1,65	13,32%	2'698,19	21,59%	0,00%	25,00%
Depreciation	INV	100	10,00%	11,11	111,11	1,78%	-0,22%	2,00	16,00%	781,25	6,25%	0,00%	25,00%
EBIT		200	20,00%	11,11	188,89	2,45%	0,45%	1,51	12,30%	1'916,94	15,34%	0,00%	25,00%
Interests	OFN	40	4,00%	13,79	26,21	2,00%	0,00%	0,30	5,80%	689,66	5,52%	-1,38%	0,00%
Pre-tax profit		160	16,00%	2,68	162,68	2,52%	0,52%	2,19	15,78%	1'227,28	9,82%	1,38%	45,43%
Taxes	TAX	64	6,40%		64,00	2,52%	0,52%	2,19	15,78%	482,82	3,86%	0,49%	43,03%
Net income	RNP	96	9,60%	-2,68	98,68	2,52%	0,52%	2,19	15,78%	744,46	5,96%	0,89%	47,03%

Table 5b. Repackaged steady-growth case to avoid both operating and financial gross value allocation gaps

		Flow	% RDV (Eq. (3))	Invest	Flow	g	g-gap	β	r	W	% W(RDV) (Eq. (10))	W-gap vs. steady-state	Δ% W vs. steady-state
Turnover	RDV	1000	100,00%		1000,00	2,00%		1,00	10,00%	12'500,00	100%		25,00%
Variable costs	CVF	300	30,00%		300,00	2,48%	0,48%	1,40	12,40%	3'024,19	24,19%	0,00%	25,00%
Contribution margin		700	70,00%		700,00	1,79%	-0,21%	0,87	9,18%	9'475,81	75,81%	0,00%	25,00%
Fixed costs	CFF	100	10,00%		100,00	1,76%	-0,24%	0,80	8,80%	1'420,45	11,36%	0,00%	25,00%
Added economic value		600	60,00%		600,00	1,80%	-0,20%	0,89	9,25%	8'055,35	64,44%	0,00%	25,00%
Salaries	FLI	300	30,00%		300,00	1,40%	-0,60%	0,50	7,00%	5'357,16	42,86%	0,00%	25,00%
EBITDA		300	30,00%		300,00	2,20%	0,20%	1,65	13,32%	2'698,19	21,59%	0,00%	25,00%
Depreciation	INV	100	10,00%	11,11	111,11	1,78%	-0,22%	2,00	16,00%	781,25	6,25%	0,00%	25,00%
EBIT		200	20,00%	11,11	188,89	2,45%	0,45%	1,51	12,30%	1'916,94	15,34%	0,00%	25,00%
Interests	OFN	40	4,00%	11,11	28,89	1,29%	-0,71%	0,11	4,64%	862,07	6,90%	0,00%	25,00%
Pre-tax profit		160	16,00%	0,00	160,00	2,66%	0,66%	2,65	17,83%	1'054,87	8,44%	0,00%	25,00%
Taxes	TAX	64	6,40%		64,00	2,66%	0,51%	2,65	17,83%	421,95	3,38%	0,00%	25,00%
Net Income	RNP	96	9,60%	0,00	96,00	2,66%	0,66%	2,65	17,83%	632,92	5,06%	0,00%	25,00%

Table 5b proposes one possible solution for debt, taxes, and equity values, given the equilibrium reported in Table 5a. Being the gross operating value increased by 25%, the coverage ratio of the value of debt gets stronger; by this way, debt becomes a less-risky capital. Two consequences emerge:

1. This can help to raise the required funds through debt-capital and to manage the liquidity puzzle of the debt-to-equity funding contribution we discussed previously;

2. The value of debt can arise to maintain the previous debt-to-equity ratio. According to the discussed NPV rule, this can happen only by reducing the cost-of-debt capital.

In the equilibrium depicted in Table 5b, liquidity is provided by financial creditors to fund growth investments. The NPV generated by the growth let the beta of debt to reduce, in order to create the same 25% of new value. This solution of liquidity from debt even allows flows to equity and to taxes remain proportional so that their relative risks are the same.

Otherwise, the liquidity contribution from equity would increase the relative risk as bear by shareholders and transfer value to the State through tax collection, as depicted in Table 5c.

Table 5c. Repackaged steady-growth case with unbalanced liquidity for debit capital and unbalanced risk sharing between shareholders and taxes

		Flow	%RDV (Eq. (3))	Invest	Flow	g	g-gap	β	r	W	% W(RDV) (Eq. (10))	W-gap vs. steady-state	Δ% W vs. steady-state
Turnover	RDV	1000	100,00%		1000,00	2,00%		1,00	10,00%	12'500,00	100%		25,00%
Variable costs	CVF	300	30,00%		300,00	2,48%	0,48%	1,40	12,40%	3'024,19	24,19%	0,00%	25,00%
Contribution margin		700	70,00%		700,00	1,79%	-0,21%	0,87	9,18%	9'475,81	75,81%	0,00%	25,00%
Fixed costs	CFF	100	10,00%		100,00	1,76%	-0,24%	0,80	8,80%	1'420,45	11,36%	0,00%	25,00%
Added economic value		600	60,00%		600,00	1,80%	-0,20%	0,89	9,25%	8'055,35	64,44%	0,00%	25,00%
Salaries	FLI	300	30,00%		300,00	1,40%	-0,60%	0,50	7,00%	5'357,16	42,86%	0,00%	25,00%
EBITDA		300	30,00%		300,00	2,20%	0,20%	1,65	13,32%	2'698,19	21,59%	0,00%	25,00%
Depreciation	INV	100	10,00%	11,11	111,11	1,78%	-0,22%	2,00	16,00%	781,25	6,25%	0,00%	25,00%
EBIT		200	20,00%	11,11	188,89	2,45%	0,45%	1,51	12,30%	1'916,94	15,34%	0,00%	25,00%
Interests	OFN	40	4,00%	5,56	34,44	1,29%	-0,71%	0,21	5,28%	862,07	6,90%	0,00%	25,00%
Pre-tax profit		160	16,00%	-5,56	154440	2,71%	0,71%	2,56	17,35%	1'054,87	8,44%	0,00%	25,00%
Taxes	TAX	64	6,40%		64,00	2,71%	0,51%	2,56	17,35%	437,13	3,50%	0,12%	29,49%
Net income	RNP	96	9,60%	5,56	90,44	2,71%	0,71%	2,56	17,35%	617,75	4,94%	-0,12%	22,00%

Supposing debt capital to contribute only half of the required liquidity (while catching the same 25% value growth), the remaining liquidity coverage done by shareholders let increase the value of taxes by 29.49%, while shares increase only 22%: a very asymmetric distribution of the gross value increase

at the 25% reached by all the other stakeholders. Maybe, this is the reason why equity capital should receive fiscal incentives funding growth, even by tax exemptions.

Comparing results of Table 2 with those in Tables 4 and Tables 5a, 5b, and 5c can give us interesting insights about the efficacy of the proposed method of GRP measurement. In Table 2, the beta of shares is 2.49 as a result of risk allocation between stakeholders. The misallocation of growth increases beta of shares to 3.79, given the same risk allocation of Table 2. Reallocating growth at the operating level generates a strong reduction of the beta of shares to 2.19, due to misallocating governance between equity and debt as reported in Table 5a. The final equilibrium is reported in Table 5b, fixing beta of shares at 2.65; even a small misallocation due to taxes might impact on the beta of shares as reported in Table 5c. The solutions proposed in Tables 5a, 5b, and 5c suppose the discounting rates (and betas) at operating levels to be insensitive to changes in growth share, i.e., the governance package is to be fully related to the firm specific risk area. This hypothesis is consistent with the idea of incomplete contracts arising from the governance deal, even if more complicated relationships cannot be excluded, according to other elements both exogenous (e.g., the legal framework) and endogenous (e.g., risk aversion of stakeholders) to the corporation. Comparing market beta with those from previous computation can efficiently catch the mismatch of the nexus of stakeholders as generated by corporate governance.

4. RESEARCH RESULTS: AN EMPIRICAL TEST IN ITALY

We tested the practical use of the proposed methodological approach over a sample made of Italian listed companies. The choice of the Italian case is direct consequence of the elements that characterize the corporate governance in that Country. Even for Italian listed companies, it is generally thought that governance may contribute significantly to the firm performance as a direct consequence of the higher concentration of shareholders and the market inefficiencies. Although significant steps forward have been done while updating the Italian rules to the European ones, further upgrades are needed both for listed and, even more, private companies.

4.1. Sample and dataset

Our sample is made of 60 Italian companies listed on the Italian Stock Exchange. The set has been selected through the AIDA — Bureax Van Dijck data base, by choosing those incorporated in Italy, having at least a track record of nine consecutive filed financial statements at end-2016, i.e., an entire long-term economic cycle after the great financial crisis. The set has been limited to fully manufacturing companies, only, to avoid complex computation of beta normalization that could affect the clarity of the exposition and might bias the application of the proposed methodology.

These are the NACE (primary) codes we used to select the final sample: 10 — Manufacture of food products; 11 — Manufacture of beverages; 12 — Manufacture of tobacco products; 13 — Manufacture of textiles; 14 — Manufacture of wearing apparel; 15 — Manufacture of leather and related products; 17 — Manufacture of paper and paper products; 18 — Printing and reproduction of recorded media; 19 — Manufacture of coke and refined petroleum products; 20 — Manufacture of chemicals and chemical products; 21 — Manufacture of basic pharmaceutical products and pharmaceutical preparations; 22 — Manufacture of rubber and plastic products; 23 — Manufacture of other non-metallic mineral products; 24 — Manufacture of basic metals; 26 — Manufacture of computer, electronic and optical products; 27 — Manufacture of electrical equipment; 28 — Manufacture of machinery and equipment; 29 — Manufacture of motor vehicles, trailers and semi-trailers; 30 — Manufacture of other transport equipment; 32 — Other manufacturing.

Table 6 lists the names of the selected companies and their NACE codes to which we will illustrate the different steps to apply the methodology in practice.

Table 6. List of the companies composing the sample (Part 1)

No.	*Company name*	*NACE code*	*No.*	*Company name*	*NACE code*
1	Aeffe S.P.A.	1413	31	Gefran S.P.A.	2651
2	Amplifon S.P.A.	3250	32	Giorgio Fedon & Figli S.P.A.	2670
3	Ansaldo STS S.P.A.	3298	33	Gruppo Ceramiche Ricchetti S.P.A.	2331
4	B&C Speakers S.P.A.	2640	34	Industria Macchine Automatiche (IMA) S.P.A.	2899
5	BasicNet S.P.A.	1413	35	Immsi S.P.A.	3091
6	Beghelli S.P.A.	2740	36	IRCE S.P.A.	2434
7	Bialetti Industrie S.P.A.	2751	37	Isagro S.P.A.	2020
8	Biesse S.P.A.	22998	38	Italmobiliare S.P.A.	2351
9	Boero Dartolomeo S.P.A.	2030	39	La Doria S.P.A.	1039
10	Buzzi Unicem S.P.A.	2351	40	Leonardo S.P.A.	3030
11	Caleffi S.P.A	1392	41	Monrif S.P.A.	1811
12	Caltagirone S.P.A	2351	42	Nice S.P.A.	2630
13	Carraro S.P.A	2932	43	Panaria Group Industrie Ceramiche S.P.A.	2331
14	Cembre S.P.A.	2712	44	Piaggio & C. S.P.A.	3091
15	Cementir Holding S.P.A	2351	45	Pierrel S.P.A.	2110

Table 6. List of the companies composing the sample (Part 2)

No.	*Company name*	*NACE code*	*No.*	*Company name*	*NACE code*
16	Centrale del Latte d'italia S.P.A	1051	46	Pinnfarina S.P.A.	2910
17	Class Editori S.P.A	1811	47	Pirelli & C. S.P.A.	2211
18	COFIDE — Gruppo De Benedetti S.P.A	1811	48	Poligrafica San Faustino S.P.A.	1812
19	Damiani S.P.A	3212	49	Poligrafici Editoriale S.P.A.	1811
20	Daneli & C. Officine Meccaniche S.P.A	2291	50	Prima Industrie S.P.A.	2849
21	De'Longhi S.P.A	2751	51	Prysmian S.P.A.	2630
22	Emak S.P.A	2230	52	Ratti S.P.A.	1310
23	Enervit S.P.A	2120	53	Reno De Medici S.P.A.	1712
24	ERG S.P.A	1920	54	Rizzoli-Corriere Della Sera Media Group S.P.A.	1811
25	Eukedos S.P.A	3250	55	Sabaf S.P.A.	2751
26	Eurotech S.P.A.	2620	56	Saras S.P.A. — Raffinerie Sarde	1920
27	Fidia S.P.A	2223	57	Stefanel S.P.A.	1413
28	Fincantieri S.P.A	311	58	TOD'S S.P.A.	1520
29	Gas Plus S.P.A	1920	59	Vianini S.P.A.	2369
30	Gedi Gruppo Editoriale S.P.A	1413	60	Zignago Vetro S.P.A.	2319

4.2. Applying the methodology, estimating GRP

Step one consists of reclassifying the profit and losses accounts to highlight the lines referring to specific stakeholders. Provided that we are considering the sample as a single company, we computed the cumulated P&L data for of the entire sample. In Table 7, you find the resulting figures from Eq. (2) and Eq. (3), for the whole sample.

Table 7. List of the companies composing the sample

		2016	*2015*	*2014*	*2013*	*2012*	*2011*	*2010*	*2009*	*2008*	*Average*
Operating revenue	*RDV*	69,497,729	70,396,239	80,380,128	84,022,766	90,495,666	89,236,368	82,341,467	76,831,257	89,862,331	81,451,550
Cost of goods sold (variable)	*CVF*	34,542,330	39,452,480	52,245,923	53,393,986	59,235,543	59,101,095	53,167,381	48,407,182	60,890,114	51,159,559
Fixed costs	*CFF*	13,771,729	10,378,837	7,334,360	9,639,669	8,199,839	9,981,921	7,471,871	6,559,249	7,336,360	8,963,759
Employees	*FU*	12,804,440	12,592,175	13,360,703	13,809,968	14,395,241	14,338,195	13,667,480	13,523,436	13,281,431	13,530,341
EBITDA		8,379,230	7,972,747	7,439,142	7,179,143	8,665,043	5,815,157	8,034,735	8,341,390	8,354,426	7,797,890
Depreciation and amort.	*INV*	3,455,135	3,404,495	3,549,095	4,671,629	5,619,548	5,144,568	3,502,671	3,372,765	3,444,259	4,018,241
EBIT		4,924,095	4,568,252	3,890,047	2,507,514	3,045,495	670,589	4,532,064	4,968,625	4910167	3,779,650
Financial costs	*OFN*	1,259,443	2,269,236	1,828,235	2,196,422	2,783,277	1,603,083	1,893,509	1,955,059	1,146,308	1,881,619
Pre-tax profit		3,664,652	2,299,016	2,061,812	311,092	262,218	-932,494	2,638,555	3,013,566	3,763,859	1,898,031
Taxation	*TAX*	1,205,801	1,302,505	1,112,946	1,206,293	925,706	623,748	417,549	1,125,069	1,422,685	1,038,034
Net Income	*RNP*	2,458,851	996,511	948,866	-895,201	-663,488	-1,556,242	2,221,006	1,888,497	2,341,174	859,997
All previous data are in EUR/000.											
		2016	*2015*	*2014*	*2013*	*2012*	*2011*	*2010*	*2009*	*2008*	*Average*
Operating revenue	*RDV*	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Cost of goods sold (variable)	*CVF*	49.70%	56.04%	65.00%	63.55%	65.46%	66.23%	64.57%	63.00%	67.76%	62.37%
Fixed costs	*CFF*	19.82%	14.74%	9.12%	11.47%	9.06%	11.19%	9.07%	8.54%	8.16%	11.24%
Employees	*FU*	18.42%	17.89%	16.62%	16.44%	15.91%	16.07%	16.60%	17.60%	14.78%	16.70%
EBITDA		12.06%	11.33%	9.25%	8.54%	9.58%	6.52%	9.76%	10.86%	9.30%	9.69%
Depreciation and amort.	*INV*	4.97%	4.84%	4.42%	5.56%	6.21%	5.77%	4.25%	4.39%	3.83%	4.91%
EBIT		7.09%	6.49%	4.84%	2.98%	3.37%	0.75%	5 50%	6.47%	5.46%	4.77%
Financial costs	*OFN*	1.81%	3.22%	2.27%	2.61%	3.08%	1.80%	2.30%	2.54%	1.28%	2.32%
Pre-tax profit		5.27%	3.27%	2.57%	0.37%	0.29%	-1.04%	3.20%	3.92%	419%	2.45%
Taxation	*TAX*	1.74%	1.85%	1.38%	1.44%	1.02%	0.70%	0.51%	1.46%	1.58%	1.30%
Net Income	RNP	3.54%	1.42%	1.18%	-1.07%	-0.73%	-1.74%	2.10%	2.46%	2.61%	1.15%
All previous data are in % of RDV.											

Step two concerns the estimation of betas for each line/stakeholder to apply Eq. (4) to (11). Beta-esteems are based on the dynamics of P&L lines for each stakeholder, as compared with those of the stock market. To achieve trustable esteems, P&L lines must refer to an uncorrelated (wider) sample over the longelongestible period. By using data from an uncorrelated sample, we can avoid loops and self-fulfilling results, while the longer time horizon protects our esteems from contingent bias, through the mean-reverting trends of risks. In fact, in the short run, betas could divert from fair data because of the market inefficiencies.

For the Italian case, the above conditions may be matched by recurring to the datasets managed by Mediobanca. The former refers to a sample of inner 2065 Italian companies[3]. Such a datasets let us have a complete and continuous time series of data to be compared with the second dataset, being the historical Italian Stock Exchange Index (COMIT) since 1982. Figure 1 depicts the dynamics of the COMIT Index (1982 = 100) with those of the total EBIT of the Mediobanca datasets (1982 = 100) and the Italian GDP real growth rate. The figure depicts different phases: 1) 1982–1986 deploys a common increase of the three lines; 2) 1986–1996 evidences larger GDP volatility which impacted the stock trends through

[3] "Dati Cumulativi di 2065 Società Italiane" by Mediobanca for 2017 and previous different years.

higher uncertainty of growth opportunities in EBITs; 3) 1997–2007 is a period with twin peaks of record highs for the Stock Exchange, as supported by continuous growth in EBITs and alternate (but positive) GDP dynamics; 4) 2008–2016 are the years of the deep financial crisis, with a tentative recovery since 2012.

Figure 1. Trends in the Italian GDP compared with COMIT Index and EBIT of Mediobanca sample

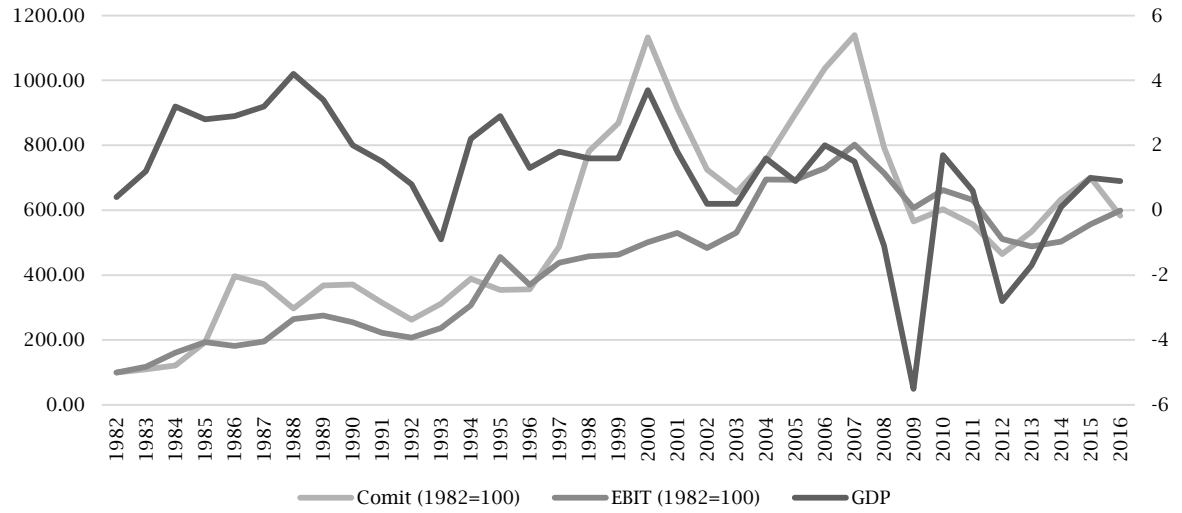

Table 8 reports data for same P&L-lines as in Table 7, now computed for the entire Mediobanca datasets, since 1982. Data are indexed to the sum of operating revenues of the datasets (1982 = 100) to simplify comparisons with the COMIT index, reported in the same table.

Table 8. Mediobanca data sets for COMIT index and companies

Mediobanca sample (*)												
Year	*COMIT index (*)*	*Operating revenue*	*Cost of goods sold (variable)*	*Fixed costs*	*Employees*	*EBITDA*	*Deprecation and amort.*	*EBIT (reported)*	*Financial costs/revs*	*Pre-tax*	*Taxation*	*Next income*
2016	1,022.66	460.86	254.16	109.71	49.15	47.31	21.28	25.77	129.11	26.76	4.22	19.79
2015	1,228.17	468.85	263.55	110.69	48.89	45.13	20.96	23.50	199.19	20.53	4.40	12.17
2014	1,109.84	473.12	273.54	108.44	47.53	43.03	21.18	21.63	67.23	24.42	3.71	18.44
2013	934.88	477.60	279.34	108.43	47.01	42.25	21.02	21.01	115.43	21.33	4.55	12.70
2012	615.57	488.71	288.35	109.09	46.99	43.76	21.57	22.44	71.39	25.25	4.71	16.80
2011	975.78	481.05	277.52	107.83	46.43	48.98	21.58	27.13	59.97	31.79	5.04	23.44
2010	1,056.61	442.78	242.12	103.80	46.14	50.45	21.73	28.44	131.01	30.09	4.99	21.63
2009	991.25	415.35	222.04	100.23	44.91	47.84	21.49	26.09	-1.78	33.39	4.68	26.23
2008	1,390.85	484.56	279.05	106.85	45.69	52.87	21.86	30.71	-2.41	39.32	4.49	33.54
2007	1,997.71	452.70	250.24	101.73	44.51	56.26	21.46	34.49	18.63	43.14	6.66	32.31
2006	1,817.61	430.03	235.23	98.50	43.42	52.90	21.31	31.34	24.32	39.95	7.57	26.79
2005	1,571.62	391.37	205.23	92.84	42.02	51.39	21.34	29.83	1.06	35.79	7.11	23.25
2004	1,321.70	363.52	180.51	90.57	40.71	52.07	22.01	29.85	-10.76	34.61	8.34	19.25
2003	1,148.99	334.99	163.99	84.15	39.90	47.10	24.26	22.83	-9.75	26.31	5.08	17.44
2002	1,271.84	323.54	160.44	80.49	39.30	43.31	22.52	20.79	-3.70	24.49	1.85	22.64
2001	1,603.09	328.71	164.88	78.77	39.24	45.83	23.04	22.79	-1.79	24.59	5.89	18.69
2000	1,984.80	324.10	167.86	72.07	39.41	44.76	23.22	21.55	-2.91	24.46	9.28	15.18
1999	1,521.64	271.75	130.31	63.83	38.80	38.81	18.92	19.89	-4.75	24.64	8.26	16.38
1998	1,369.92	258.75	122.03	59.41	38.89	38.42	18.74	19.68	-1.43	21.11	8.19	12.92
1997	654.07	257.43	125.44	54.73	39.39	37.87	19.05	18.82	-0.50	19.32	6.94	12.38
1996	624.56	240.32	117.45	50.74	38.50	33.63	17.73	15.90	0.69	15.21	6.39	8.83
1995	621.19	235.68	112.92	48.36	37.25	37.16	17.57	19.59	2.50	17.10	5.71	11.39
1994	680.96	207.94	96.09	45.02	36.87	29.97	16.75	13.21	1.95	11.27	3.65	7.62
1993	546.05	193.22	86.57	45.37	36.31	24.98	14.79	10.19	4.21	5.98	2.98	3.00
1992	460.35	187.51	83.10	44 66	36.63	23.11	14.19	8.93	3.77	5.16	2.45	2.70
1991	551.69	183.76	87.20	38.44	35.64	22.49	12.92	9.57	2.87	6.69	2.43	426
1990	650.13	176.48	85.02	35.55	33.54	22.37	11.43	10.94	2.46	8.47	2.78	5.69
1989	644.62	168.38	82.50	32.27	31.48	22.13	10.27	11.86	1.74	10.12	3.05	7.07
1988	521.03	149.63	71.77	28.71	28.47	20.70	9.32	11.37	1.94	9.43	2.97	6.46
1987	652.31	135.96	66.48	26.03	26.09	17.36	8.95	8.41	1.73	6.67	1.61	5.06
1986	695.95	125.71	63.05	22.90	23.82	15.94	8.15	7.80	1.80	6.00	1.93	4.07
1985	338.46	135.73	76.08	21.49	22.47	15.69	7.36	8.33	3.05	5.28	1.68	3.60
1984	213.69	121.44	68.59	18.59	20.48	13.78	6.86	6.92	3.87	3.04	1.45	1.59
1983	193.04	107.81	61.07	16.61	19.23	10.94	5.84	5.07	4.20	0.87	0.99	-0.12
1982	175.27	100.00	58.29	14.90	17.52	9.30	5.00	4.30	4.69	-0.39	0.89	-1.28

Note: (*) Year average; (**) Indexed data 1992 operating revenues = 100.

By using figures in Table 8, we compute the betas for any specific line of the aggregated P&L: we will call them as "*BOOK-beta*", to remind that they are computed through a comparison of the accounting data dynamics with those of the stock market. Like the standard "*CAPM-beta*", resulting indexes state the relative sensitivity of the specific line/stakeholder to the market as a whole; therefore, the systematic risk, only. Results of computations are reported in Table 9 for the entire 1982–2016 timeline and for the sub-periods as depicted by Figure 1.

Table 9. BOOK-beta for the specific P&L lines

	1982–2016	*2012–2016*	*2008–2012*	*1996–2007*	*1986–1996*	*1982–1986*
Operating revenue	0.6746	-0.6852	0.0968	0.7028	-0.1073	0.5436
Cost of goods sold (variable)	0.6164	-0.6657	0.0288	0.7119	0.0114	0.0902
Fixed costs	0.6961	0.5453	-0.0841	0.6536	-0.2780	0.8482
Employees	0.6542	0.6671	-0.4580	0.5895	-0.3264	0.8576
EBITDA	0.8355	0.2780	0.9147	0.6862	0.0190	0.7312
Depreciation and amort.	0.7892	-0.7318	0.8431	0.4663	-0.1240	0.8261
EBIT	0.8294	0.2312	0.9183	0.6508	0.1603	0.6450
Financial costs	0.0933	0.6524	-0.4211	0.4604	-0.6349	-0.9606
Pre-tax profit	0.8490	-0.4193	0.9205	0.6923	0.3048	0.8043
Taxation	0.7825	-0.5620	-0.4820	0.3198	0.0942	0.8383
Net Income	0.8104	0.2077	0.9216	0.6894	0.4028	0.7957

Any difference between the *BOOK-beta* for revenues and those for a specific P&L line specifies the different risk-sharing choice made for each stakeholder (Eq. (11)). On the other side, the different results for each sub-period in timeline are proof of the reactions of the Companies to the economic contingencies. Therefore, they are a direct consequence of the tentative to adopt new packages of the nexus of stakeholders (i.e., improve the corporate governance) provided the overall risks. This is the reason why some of the figures are even negative.

Step three consists of using the *BOOK-betas* in Table 9 to test the equilibriums in Eq. (12) and Eq. (12a) by using data of the P&L lines of our specific sample as reported in Table 7. This should permit us to discover basic GRPs as to Eq. (14). In fact, in case of complete corporate governance of our sample, the market data should coincide with those computed as a linear combination of the different lines. Table 10 deploys results of computations made according to Eq. (3) weights.

Table 10. BOOK-beta benchmark using P&L weights

	(A) % in P&L (Table 7)	*(B) BOOK-beta (Table 9)*	*(C) = (A) x (B)*	*Linear beta (D) = (C)/(A)*	*Beta gap (E) = (B) – (D)*	*GRP (*)*
Operating revenue	100.00%	0.674574	0.674574			
Cost of goods sold (variable)	-62.37%	0.616383	-0.384426			
Fixed costs	-11.24%	0.696144	-0.078261			
Employees	-16.70%	0.654230	-0.109274			
EBITDA (linear combination)	9.69%		0.102613	1.059266	0.223769	1.23%
EBITDA (market evidence)		0.835496				
Depreciation and amort.	-4.91%	0.789210	-0.038789			
EBIT (linear combination)	4.77%		0.063824	1.337395	0.508040	2.79%
EBIT (market evidence)		0.829356				
Financial costs	-2.32%	0.093338	-0.002169			
Pre-tax income (linear combination)	2.45%		0.061655	2.518329	1.669304	9.18%
Pre-tax income (market evidence)		0.849024				
Taxation	-1.30%	0.782458	-0.010156			
Net Income (linear combination)	1.15%		0.051498	4.477212	3.666765	20.17%
Net Income (market evidence)		0.810447				

Note: (*) GRP is computed considering a 5.5% long term Italian equity risk premium.

Table 10 clarifies how inefficient would be to have corporate governance deals/solutions that combine the nexus of shareholders according to the relative weights of P&L lines only. Should this being the case, huge governance risk premia emerge at operating level (0.5080 beta gap). Considering the long term 5.50% equity risk premium, such an operating beta gap generates a 2.79% GRP embedded in the operating corporate cost of capital. No affordable results emerge at equity level since dataset on P&L, only, are unable to catch the allocation of risks made by corporate governance into the nexus.

Accordingly, we must switch over the use of weights from the accounting-values ones (Eq. (3)) to the market-value ones (Eq. (10)). Table 11 compute data as in Table 10 but considering the relative weight of the market values for the stakeholders of each P&L line. Each market value is computed as in Eq. (8), by using discounting rates determined according to Eq. (9) and betas esteems in Table 9. Therefore, a steady-state scenario is supposed.

Table 11. BOOK-beta benchmark using weights based on values in steady-state scenario

	% in P&L (Table 7)	*(A) % in W (*)*	*(B) BOOK-beta (Table 9)*	*(C) = (A) x (B)*	*Linear beta (D) = (C)/(A)*	*Beta gap (E) = (B) – (D)*	*GRP (**)*
Operating revenue	100.00%	100.00%	0.674574	0.674574			
Cost of goods sold (variable)	-62.37%	-65.07%	0.616383	-0.401074			
Fixed costs	-11.24%	-11.07%	0.696144	-0.077076			
Employees	-16.70%	-16.95%	0.654230	-0.110883			
EBITDA (linear combination)	9.69%	6.91%		0.085541	1.237834	0.402338	2.21%
EBITDA (market evidence)		8.69%	0.835496				
Depreciation and amort.	-4.91%	-4.54%	0.789210	-0.035857			
EBIT (linear combination)	4.77%	2.37%		0.049684	2.098906	1.269550	6.98%
EBIT (market evidence)		4.30%	0.829356				
Financial costs	-2.32%	-3.97%	0.093338	-0.003706			
Pre-tax income (linear combination)	2.45%	-1.60%		0.045979	-2.868343	-3.717367	-20.45%
Pre-tax income (market evidence)		2.18%	0.849024				
Taxation	-1.30%	-1.21%	0.782458	-0.009431			
Net income (linear combination)	1.15%	-2.81%		0.036548	-1.301463	-2.111910	-11.62%
Net income (market evidence)		1.05%	*0.810447*				

Note: (*) W is computed considering discount rates based on betas as in Table 9 and supposing a steady state scenario; (**) GRP is computed considering a 5.5% long term Italian equity risk premium.

According to Table 11, the incompleteness of the governance increases once you consider the risk sharing process taking place inside the nexus of stakeholders. In fact, GRP estimates inflate at whatever level, suggesting that deals between stakeholders are incomplete missing a fully awareness of the risk sharing process sourcing from participating the organization. Perhaps, we must also consider that any corporate deal tends to jointly allocate risks and growth opportunities among the stakeholders. Therefore, we must complete our estimation exercise by considering the impact of growth over the weights adopted to benchmark the BOOK-betas.

Table 12 reports the historical gearing rates for each line of the cumulative P&L for our sample. Accordingly, weights are re-calculated using such gearing rates in standard steady-growth formula. Results are compared with the weights computed with different approaches in previous Table 10 (linear combination of P&L lines) and Table 11 (steady-state values).

Table 12. Historical growth rates, BOOK-beta, discount rates and %-weights for the sample

				% Weights (**)		
	Growth (*)	*BOOK-beta*	*k (*)*	*P&L lines*	*Steady state*	*Steady growth*
Operating revenue	-2.84%	0.6746	7.71%	100.00%	100.00%	100.00%
Cost of goods sold (variable)	-6.03%	0.6164	7.39%	-62.37%	-65.07%	-49.04%
Fixed costs	10.86%	0.6961	7.83%	-11.24%	-11.07%	-15.15%
Employees	-0.40%	0.6542	7.60%	-16.70%	-16.95%	-22.04%
EBITDA	2.04%	0.8355	8.60%	9.69%	8.69%	15.59%
Depreciation and amort.	1.80%	0.7892	8.34%	-4.91%	-4.54%	-7.93%
EBIT	40.51%	0.8294	8.56%	4.77%	4.30%	-1.58%
Financial costs	8.43%	0.0933	451%	-2.32%	-3.97%	6.26%
Pre-tax	44.56%	0.8490	8.67%	2.45%	2.18%	-0.72%
Taxation	5.77%	0.7825	8.30%	-1.30%	-1.21%	-5.41%
Net income	-31.06%	0.8104	8.46%	1.15%	1.05%	0.31%

Note: (*) it is computed as the average of the annual rate growth between 2009 and 2016; (**) market-based weights are computed according to the specific discount rate k. Therefore, they do not combine linearly.

Weights in Table 12 are now used to test further Eq. (12) to discover more accurate GRP esteems based on Eq. (14). Table 13 explains the computations.

The figures depicted in Table 13 confirm that the trade-off between growth and risks is the key driver to adjust the corporate governance equilibrium and keep sustainable the nexus of the stakeholders of the firm. In fact, the GRP declines to 110bp at the operating level.

Table 13. BOOK-beta benchmark for the 2016–2009 period
(value weights, differentiated steady growth scenario)

	% in P&L (Table 7)	*Growth (Table 12)*	*(A)% in W (*)*	*(B) BOOK-beta (Table 9)*	*(C) = (A) x (B)*	*Linear beta (D) =(C)/(A)*	*Beta gap (E) = (B) – (D)*	*GRP (**)*
Operating revenue	100.00%	-2.84%	100.00%	0.674574	0.674574			
Cost of goods sold (variable)	-62.37%	-6.03%	-49.04%	0.616383	-0.302296			
Fixed costs	-11.24%	10.86%	-15.15%	0.696144	-0.105478			
Employees	-16.70%	-0.40%	-22.04%	0.654230	-0.144171			
EBITDA (linear combination)	9.69%	2.04%	13.77%		0.122629	0.890686	0.055189	0.30%
EBITDA (market evidence)			15.59%	0.835496				
Depreciation and amort.	-4.91%	1.80%	-7.93%	0.789210	-0.062575			
EBIT (linear combination)	4.77%	40.51%	5.84%		0.060054	1.028478	0.199122	1.10%
EBIT (market evidence)			-1.58%	0.829356				
Financial costs	-2.32%	8.43%	6.26%	0.093338	0.005840			
Pre-tax income (linear combination)	2.45%	44.56%	12.10%		0.065894	0.544767	-0.304257	-1.67%
Pre-tax income (market evidence)			-0.72%	0.849024				
Taxation	-1.30%	5.77%	-5.41%	0.782458	-0.042314			
Net income (linear combination)	1.15%	-31.06%	6.69%		0.023580	0.352575	-0.457872	-2.52%
Net income (market evidence)			0.31%	0.810447				

Note: (*) W is computed considering discount rates based on betas as in Table 9 and supposing a steady state scenario at historical levels in Table 12; (**) GRP is computed considering a 5.5% long-term Italian equity risk premium.

4.3. Discussing results by breaking-down GRP

Provided the incompleteness of corporate governance, step four consists of using the previous esteems to assess the GRP using our break-down proposal, as already depicted in Section 2.

We will focus at the operating level. Three of the four possible components contributing to the risk premium generated by incomplete governance are detected in the figures. In fact:

- The basic component (due to the distortions of a negotiation process carried out in ex-ante incomplete markets) can be estimated at 1.23%, as in Table 10.
- The informative component (due the asymmetries in ex-ante negotiations, as well, missing the risk sharing consequences) adds 0.98% (= 2.21%–1.23%), as in Table 11.
- The managerial component (due to the capability to deal with fair values including growing opportunities) reduces by 1.91% (to 0.30% = 2.21% – 1,91%) as in Table 13.

We still must find out if the residual 0.30% (= 1.23% + 0.98% – 1.91%) must be considered as the actual GRP or the direct consequence of its behavioral component. From Section 2 we got that such a component is a direct consequence of options to re-negotiate the nexus in an ex-post framework. In fact, this GRP component sources from the capability of the specific nexus to be resilient, i.e., to use endogenous strength to react promptly to exogenous menaces. By comparing the BOOK-betas in Table 9 (Mediobanca datasets) with similar computations made for the nexus under investigation (i.e., our sample), we may get more insights about resilience.

Table 14 exposes the BOOK-betas of the (wider) Mediobanca datasets with those of our (smaller) sample as in Table 6. For the Mediobanca datasets, two sets of BOOK-betas are reported also including those for the shorter time period of analysis for our sample.

Table 14. Comparison of BOOK-betas according to samples and time periods

	Mediobanca sample		*Our sample*
	1982–2016	*2008–2016*	*2008–2016*
Operating revenue	0.6746	0.0773	-0.1444
Cost of goods sold (variable)	0.6164	-0.0104	-0.0666
Fixed costs	0.6961	0.0590	-0.1230
Employees	0.6542	0.0133	-0.6473
EBITDA	0.8355	0.5278	0.1410
Depreciation and amort.	0.7892	0.1310	-0.6870
EBIT	0.8294	0.5172	0.4993
Financial costs	0.0933	-0.0542	-0.5788
Pre-tax	0.8490	0.3836	0.6201
Taxation	0.7825	-0.3016	0.4666
Net income	0.8104	0.4479	0.5660

Table 15 reports the benchmarking of the BOOK-betas computed in Table 14 for our sample. The operating GRP inflates to 1.20% (+0.90% vs. 0.30% was in Table 13). On the other hands, the GRP into the equity cost of capital gets to 0.39%, only (vs. -2.52% in Table 13).

Table 15. Benchmark of sample-specific BOOK-beta for 2016–2009 period

	% in P&L (Table 7)	*Growth (Table 12)*	*(A) % in W (*)*	*(B) BOOK-beta (Table 9)*	*(C) = (A) x (B)*	*Linear beta (D) = (C)/(A)*	*Beta gap (E) = (B) – (D)*	*GRP (**)*
Operating revenue	100.00%	-2.84%	100.00%	-0.144377	-0.144377			
Cost of goods sold (variable)	-62.37%	-6.03%	-49.04%	-0.066606	0.032666			
Fixed costs	-11.24%	10.86%	-15.15%	-0.122984	0.018634			
Employees	-16.70%	-0.40%	-22.04%	-0.647267	0.142637			
EBITDA (linear combination)	9.69%	2.04%	13.77%		0.049560	0.359964	0.219009	1.20%
EBITDA (market evidence)			15.59%	0.140955				
Depreciation and amort.	-4.91%	1.80%	-7.93%	-0.687027	0.054473			
EBIT (linear combination)	4.77%	40.51%	5.84%		0.104033	1.781652	1.282315	7.05%
EBIT (market evidence)			-1.58%	0.499337				
Financial costs	-2.32%	8.43%	6.26%	-0.578787	-0.036213			
Pre-tax income (linear combination)	2.45%	44.56%	12.10%		0.067820	0.560691	-0.059359	-0.33%
Pre-tax income (market evidence)			-0.72%	0.620050				
Taxation	-1.30%	5.77%	-5.41%	0.466626	-0.025234			
Net income (linear combination)	1.15%	-31.06%	6.69%		0.042586	0.636750	0.070752	0.39%
Net income (market evidence)			0.31%	0.565999				

Note: (*) W is computed considering discount rates based on betas as in Table 9 and supposing a steady state scenario at historical levels in Table 12; (**) GRP is computed considering a 5.5% long-term Italian equity risk premium.

According to Table 15, the corporate reactions adopted by our sample were mainly focused on equity capital and preventing the impacts of GRP on the equity cost of capital, although a sharing process with debt capital reduces by 0.81% the final GRP embedded into cost of equity capital. To help in understanding such resilience, Table 16 shows the correlations of the same P&L lines computed toward the operating revenues of each referring sample.

Table 16. Comparison of correlation vs. operating revenues

	Mediobanca sample		*Our sample*
	1982–2016	*2008–2016*	*2008–2016*
Operating revenue	1,0000	1,0000	1,0000
Cost of goods sold (variable)	0,9916	0,9863	0,9781
Fixed costs	0,9936	0,8099	-0,5055
Employees	0,9169	0,3460	0,8233
EBITDA	0,9131	-0,2190	-0,2721
Depreciation and amort.	0,8668	-0,0605	0,6536
EBIT	0,9001	-0,2162	-0,5585
Financial costs	0,5805	0,1093	0,1075
Pre-tax	0,8728	-0,2045	-0,5269
Taxation	0,5151	-0,1522	-0,3133
Net Income	0,8539	-0,1896	-0,4986

Fixed costs and depreciation (i.e., investment policy) are the inner sources of operating resilience in our sample, together with Employees. In fact, fixed costs deploy a negative correlation in our sample, while Mediobanca datasets slightly reduced the positive correlation only. The correlation is slightly reducing (but still positive) for our sample as far as the investment policy is concerned, while the Mediobanca datasets regret to negative correlation. We conclude that the resilient capability sourced from a more careful investment policy leads to superior control of the value chain, particularly on the suppliers' side. In the meantime, the relevant difference in the correlation of cost of employee vs. operating revenues, higher indeed in our sample, suggests a superior capability to react promptly to the fluctuation of demand, making variable costs those that frequently is considered as a fix in Italy, due to legislation and labour unions.

5. CONCLUSION

The governance concept adopted in this paper refers to a firm to be intended as a nexus of stakeholders. In such a framework the chosen governance is asked to split the present value of expected payoffs between the stakeholders of the firm, i.e., to jointly share flows, risks, and their time duration. Governance negotiations based on margins/profits sharing, only, are short-term oriented and ready to become obsolete very soon. They require continuous-time re-negotiations and supporting contracts will be incomplete. Each renegotiation can be particularly expensive, suggesting protective behaviour during the deal. This makes arise GRP in expectations: stakeholders will require higher flows without having the opportunity to catch higher values of their own position versus the firm. In case of persistent excessive risk sharing, some stakeholders may decide to abandon the nexus (i.e., the firm). The higher is the number of stakeholders

abandoning the firm, the lower will be the long-term sustainability of the firm. Indeed, GRP-emersion signals the opportunity to repackage the governance because of incompleteness of both markets and contracts. Being based on value allocation, the sources of governance inefficiency may refer to different drivers: flows, risk, time-horizons, growth, along with the sharing agreements referring to them. Governance might be incomplete itself if such drivers are not well allocated into the nexus, i.e., contracts are unable to craft drivers according to stakeholder's attitudes.

This is why a methodology to measure GRP and to relate it to different sources is required. But how to do it in practice? The inner contribution of the paper is the proposal of an innovative methodology to measure GRP and split its sensitivity according to the possible drivers of the chosen Governance. The basic concept adopted by the proposed method is based on the linear relationship of systematic risks (the CAPM-betas) to be applied into the value chain model as modified to consider all risk-sharing processes: GRP emerges when the measured CAPM-beta diverts from the one computed considering the firm as a portfolio (the nexus) of stakeholders' expectations each with its own BOOK-beta. An application to a sample of companies listed in the Italian Stock Exchange permits finding 0.39% GRP into the equity cost of capital. Such a GRP has the following breakdown: +1.23% operating basic component (Table 10); +0.98% operating informative component (to 2.21% as in tab. 12); -1.91% managerial component (leads to 0.30% as per tab. 14); +0.90% operating behavioural component; 0.81% quota of operating GRP shared to debt capital (as detailed in Table 15).

The empirical application pointed out the main limitations which may arise: 1) esteems of beta for each stakeholder are mainly made through accounting data of the firm and peer groups (e.g., Mediobanca sample, in the paper). Recurring to more exogenous benchmarks may improve the affordability of the results; 2) the beta of each stakeholder is computed according to the beta of revenues. By controlling the computation with external indexes (when available) could also improve the strength of the resulting figures. These limits show the main routes for forthcoming research efforts to develop in the next future, maybe investigating GRP in clusters of firms to be identified through elements different from the geographical criteria adopted in this paper.

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