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## Governance risks: How to measure them by means of the incremental cash-flow model

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**GOVERNANCE RISKS  
(HOW TO MEASURE THEM BY MEANS OF  
THE INCREMENTAL CASH-FLOW MODEL)**

**Rodolfo Apreda**

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**Center for the Study of Public and Private Governance**

**GOVERNANCE RISKS**

**How to measure them by means  
of the incremental cash-flow model**

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## **ABSTRACT**

*Governance risks stem from the own governance of any organization. The paper puts forward an operational viewpoint of those risks, by mapping the most distinctive categories of governance analysis onto time-dependent governance variables. Afterwards, risks conveyed by the latter are measured against incremental cash flows. The procedure allows a joint analysis of the risky positions carried out by governance variables, tracking them down onto their natural drivers, the incremental cash flows related to assets, creditors, managers, stockholders, and the company's portfolio of non-current financial assets*

*JEL codes: G34, G32*

*Key words: governance risks, corporate governance, incremental cash flows, governance variables*

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## INTRODUCTION

In this paper, I will set forth what governance risks are about and expand on how to handle them by means of the incremental cash-flow model. Primary antecedents of the new technique can be found in earlier research papers of mine<sup>2</sup>.

Section 1 will focus on how the concept of risk applies in Corporate Finance, whereby we could take a further step intended to frame an operational definition of governance risks in section 2. While section 3 brings forth the foundations for the incremental cash-flow model, it is for section 4 to show how governance risks can be weighed up from the perspective of such model. Lastly, a comprehensive numerical application of the technique will be developed in full.

### 1 ABOUT RISKS IN CORPORATE FINANCE

Firstly, let us assume that we are planning along a time-framed horizon  $\mathbf{H} = [\mathbf{t} ; \mathbf{T}]$ , starting at date “ $\mathbf{t}$ ” and ending at date “ $\mathbf{T}$ ”. Next, we choose a temporal variable that we want to study<sup>3</sup>

$$\mathbf{X}(\mathbf{s})$$

For instance,  $\mathbf{X}(\mathbf{s})$  could refer to the rate of return from a financial asset, or perhaps its price in the market at date  $\mathbf{s}$ .

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<sup>2</sup> Apreda (1999a, 1999b, 2002a, 2004, 2008).

<sup>3</sup> Although it is currently called “variable”,  $\mathbf{X}$  is actually a function whose domain lies on the set of real numbers, and the same holds for its co-domain, hence:

$$\mathbf{X} : \mathbf{R}^1 \rightarrow \mathbf{R}^1 \quad ; \quad \text{such that} \quad \mathbf{H} = [\mathbf{t} ; \mathbf{T}] \subseteq \mathbf{R}^1$$

Any value  $\mathbf{s}$  less than  $\mathbf{t}$  signals a past event with respect to date  $\mathbf{t}$ , whereas any value of  $\mathbf{s}$  greater than  $\mathbf{t}$  stands for a future event.

Afterwards, we need to elicit the value of  $\mathbf{X}(\mathbf{T})$  at the onset of the horizon. That is to say, we engage in the appraisal of  $\mathbf{E} [\mathbf{X}(\mathbf{T}) ; \mathbf{I}(\mathbf{t})]$ , an expression that reads “the expected value of  $\mathbf{X}$  at  $\mathbf{T}$ , retrieved from the information set  $\mathbf{I}(\mathbf{t})$  available to the analyst at date  $\mathbf{t}$ ”.

Broadly speaking, by an information set  $\mathbf{I}(\mathbf{t})$  it is usually understood all the stored information up to that date stemming from manifold sources, namely the analyst own experience and professional qualifications<sup>4</sup>, including any attainable public information, also outside expert information to be tapped into, and the like<sup>5</sup>. Following this line of argument, two separate valuation dates must be confronted, and for each of them the underlying information sets will be different most of the time.

$\mathbf{t}$ (valuation date)	$\mathbf{T}$ (end of the planning horizon)
$\mathbf{E}[\mathbf{X}(\mathbf{T})]$ the value that is assessed at the beginning of the horizon	$\mathbf{X}(\mathbf{T})$ the value that is realized at the end of the horizon
The analyst makes his decisions constrained by his information set $\mathbf{I}(\mathbf{t})$ .	The analyst hence adds to the old information set $\mathbf{I}(\mathbf{t})$ new information brought about by unexpected events along the horizon, finally getting $\mathbf{I}(\mathbf{T})$ .

Hardly surprising, there will be a discrepancy between the expected value and the realized one, an event whose occurrence marks out what is meant by risk in Finance.

***Definition 1            Risk in Finance***

*Along any planning horizon  $\mathbf{H} = [\mathbf{t} ; \mathbf{T}]$ , risk in finance arises out of the discrepancy*

$$\Delta \mathbf{X}(\mathbf{t} ; \mathbf{T})$$

---

<sup>4</sup> Including knowledge, which comprises not only information, but also learning about how to use it. On this topic, the book *Knowledge Sets* by Doignon and Falmagne (1999) gives an innovative and remarkable mathematical background.

<sup>5</sup> Further development on this issue can be found in Apreda (2002a).

between the expected and realized values of any financial variable  $X$ . That is to say,

$$\Delta X(t; T) = X(T) - E[X(T); I(t)]$$

From now on, the discrepancy  $\Delta X(t; T)$  will also be called “risk-gap”

### Remarks

- In contradistinction to risky assets, whose ex ante and ex post returns point out to natural discrepancies, a risk-free asset  $F$  is predicated on condition that expected and realized returns fulfill

$$R(F, T) = E[R(F, T); I(t)]$$

- Definitions, within the scope of this paper, stand for a semantic and methodological vehicle on behalf of any considered reader who may ask himself: which is the meaning the author attaches to such and such expression? Under no circumstances definitions will intend to be regarded as the best available, still less the only ones that may be adopted

## 1.1 DOWNSIDE AND UPSIDE RISKS

Whenever we buy a financial asset at date  $t$ , it is said that we “open a risk-position” because at the closing date  $T$  when the asset is sold<sup>6</sup>, the actual selling value will be at variance with the one forecasted at the opening date.

### *Example*

*Let us imagine that an analyst or investor buys at date  $t$  a financial asset issued by company  $K$ . At that moment, he assesses a yield of 7% to be reaped at the end of the planning horizon (for instance, six months ahead). At date  $T$ , however there will be a discrepancy between expected and realized values. For the sake of illustration, two possible states of nature will be discussed:*

---

<sup>6</sup> Instead of selling the asset, we could rebalance the portfolio and choose  $T$  as a the starting date of a new horizon,  $H = [T; T + h]$ . To all intents and purposes, if we kept the asset along the new horizon, we would have to forecast the expected return  $E[R(T + h); I(T)]$ .



*State 1:*        *the realized return climbed to 9 %.*

*State 2:*        *the realized return fell down to 6%.*

When closing the risk-position, it is said that we have run an **upside risk** whenever the expected value performs worse than the realized value. If such were not the case, and the realized value had fallen down below the expected value, we would have run a **downside risk**. In both states, opening a risk-position eventually leads either to beneficial or detrimental consequences. However, when assessing the side effects of any position we must wonder how much of the value in the final stage of the open position should be attributable to the budgeter skills, and to what extent a cluster of factors foreign to him might have been shaping that outcome eventually. Next box brings home these matters, taking advantage of the foregoing example.

<b>Risk Position</b>		
<b>Opening position at valuation date t</b>		<b>Closing position at date T</b>
$E[ R_k (t ; T) ] = 7\%$		State 1 $R_k (t ; T) = 9\%$ State 2 $R_k (t ; T) = 6\%$
<b>Risk Analysis</b>		
<b>Discrepancy</b>	<b><math>\Delta X(t ; T)</math></b>	<b>Review</b>
State 1	+ 2%	Good for the analyst (what about unexpected events outside the analyst's reach?)
State 2	- 1%	Bad for the analyst (what about unexpected events outside the analyst's reach?)
<b>Performance of the Risk Position</b>		
<b>Discrepancy</b>	<b><math>\Delta X(t ; T)</math></b>	<b>Side effects of the risk position</b>
State 1	+ 2%	Upside risk. The opening position was beneficial.
State 2	- 1%	Downside risk. The opening position brought about a loss.

From the viewpoint of this after-the-fact analysis, there would be four types of overlapping consequences involved in currently decision-making processes:

- *intended outcomes* that follow from profit-seeking and forecasting techniques,
- *unintended results* that stem from sheer mistakes, incompetence, or negligence,
- *unintended consequences* arising out of external factors to the analyst,
- and, last but not least, the learning from the discrepancy between expected and realized values of the variable provides *feedback* to upgrade future assessments.

## 2. GOVERNANCE RISKS

To begin with, any organization comprises a governance structure that hinges upon two main pillars: regulatory and discretionary blueprints of governance<sup>7</sup>. On the other hand, corporate governance can be defined<sup>8</sup> as that field of learning and practice concerned with the following problems and issues, which may be labeled “governance categories of analysis”:

- *Ownership structure and owners rights.*
- *Company’s founding Charter and by-laws.*
- *The Board of Directors or Trustees; their fiduciary duties and the allocation of control rights.*
- *Accountability and transparency.*
- *Managers’ fiduciary duties and their decision rights; performance and incentives.*
- *Investors’ property rights and protective covenants*
- *Conflicts of interest among owners, directors, managers, creditors, and with other stakeholders.*
- *Rent-seeking, soft-budget constraints, and tunneling.*
- *Institutional constraints, the role of regulators and gatekeepers, compliance.*

Be that as it may, merely itemizing governance categories does not warrant that we can measure governance risks, unless we were able to map those categories onto distinctive decision-making variables like the ones listed in the box below<sup>9</sup>.

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<sup>7</sup> In other words, the governance that is compulsorily requested by law and regulators, in contrast with the governance any organization can improve by option and will.

<sup>8</sup> The definition comes out of the semantics of governance as it was unfolded in Apreda (2005).

<sup>9</sup> Like any other of the sort, classifications remain a matter of choice. Therefore, the mapping suggested in the box does not intend to be the only one available, nor the best among other candidates.

The salient difference between governance categories and variables for decision-making can be stated the following way: the former contributes to the understanding and analysis of the main components of corporate governance as a field of enquiry, the latter moves on to the practical and factual sides of corporate governance.

<b>MAPPING GOVERNANCE CATEGORIES ONTO DECISION-MAKING VARIABLES</b>	
<b>Governance categories of analysis</b>	<b>Governance variables <math>G_k (s)</math> for decision-making along the planning horizon <math>H = [t ; T]</math></b>
<i>ownership structure owners rights</i>	$G_1 (s) = \text{Owners } (s)$
<i>the board of directors or trustees their fiduciary duties the allocation of their control rights</i>	$G_2 (s) = \text{Directors } (s)$
<i>managers' fiduciary duties their decision rights their performance and incentives</i>	$G_3 (s) = \text{Managers } (s)$
<i>creditors' property rights protective covenants</i>	$G_4 (s) = \text{Creditors } (s)$
<i>the company's founding charter internally enacted by-laws accountability transparency</i>	$G_5 (s) = \text{Governance architecture } (s)$
<i>conflicts of interest a) among owners, directors, managers, and creditors b) with other stakeholders</i>	$G_6 (s) = \text{Conflicts of interest } (s)$
<i>rent-seeking soft-budget constraints tunneling</i>	$G_7 (s) = \text{Deviant governance } (s)$
<i>institutional constraints the role of regulators and gatekeepers compliance</i>	$G_8 (s) = \text{Overlooking and compliance } (s)$

It's worth remarking that the foregoing arrangement of governance variables can be split into two distinctive groups:

a) variables pertaining to governance actors

- *Owners (s)*
- *Directors (s)*
- *Managers (s)*
- *Creditors (s)*

b) variables bringing about material consequences for the organization

- *Governance architecture ( s )*
- *Conflicts of interest ( s )*
- *Deviant governance ( s )*
- *Overlooking and compliance ( s )*

If we take into account the argument developed in section 1.1 around the issue of risk in Finance<sup>10</sup>, we will realize that governance variables are time-dependent and make for risk-positions, and both features call for a streamlined definition.

***Definition 2                      Governance Risks***

*In the planning horizon  $\mathbf{H} = [ t ; \mathbf{T} ]$ , by Governance Risks we mean those risks that arise out of the following time-dependant governance variables of analysis, namely*

- *Owners ( s )*
- *Directors ( s )*
- *Managers ( s )*
- *Creditors ( s )*
- *Governance architecture ( s )*
- *Conflicts of interest ( s )*
- *Deviant governance ( s )*
- *Overlooking and compliance ( s )*

Definition 2 brings forth a comprehensive set of time-dependent governance variables<sup>11</sup>

$$\{ \mathbf{G}_k(\mathbf{s}) : k = 1, 2, \dots, 8 ; \mathbf{s} \in \mathbf{R}^1 \}$$

---

<sup>10</sup> This suits what Oliver Williamson noticed in his book “The Mechanisms of Governance”, chapter 7, pp. 171 (1996), and his 1998 paper (p. 567): both corporate governance and corporate finance can be assimilated to the sides of a same coin.

<sup>11</sup> It will be read like “the set of the governance variables  $\mathbf{G}_k(\mathbf{s})$ , where  $\mathbf{k}$  is an index that takes values from 1 to 8, and  $\mathbf{s}$  is any real number in the line of time.” See also footnote 2.

from which it can be established the risk-gap  $\Delta (G_k, t, T)$  between the assessed value at date  $t$  and the realized value at date  $T$ , for each governance variable. That is to say:

(1)

$$\Delta (G_k, t, T) = G_k(T) - E[ G_k(T); I(t) ]$$

The task ahead consists in finding out how to measure the risks encompassed by (1). To achieve a suitable metrics for them, I will be putting forward an innovative technique<sup>12</sup> that works out governance risks by means of their impact through incremental cash flows. But before dealing with the linkage between incremental cash flows and governance variables, let us underline the basics of the incremental cash flow model.

### 3. THE INCREMENTAL CASH-FLOW MODEL

How is the so-called incremental cash-flow model<sup>13</sup> built up eventually? Firstly, a planning horizon  $H = [ t ; T ]$  will be defined and, secondly, the analyst must be provided with a Balance Sheet at  $t$ , the closest as possible to such date, perhaps by updating the last reported statement. He will also avail himself of an Income Statement budgeted from date  $t$  through date  $T$ , and a projection of the Balance Sheet up to date  $T$ .

Balance Sheet at the beginning and end of the planning horizon					
Concept	date t	date T	Concept	date t	Date T
Current assets			Current liabilities		
Non-current assets (net of depreciations and amortizations)			Non-current liabilities		
			Equity		
Total assets			Liabilities + Equity		

<sup>12</sup> This sort of metrics was dealt with for the first time in Apreda (1999a, 1999b). An alternative technique based on a weighted average index of governance can be found in Apreda (2007).

<sup>13</sup> Ross et al. (1995, chapter 2) renders a a standard reference.

Thereafter, he shifts current liabilities to the left side of the preceding information box, placing them into the working capital, which is a net balance of current assets and liabilities.

Having done this, he turns the information box into an incremental balance.

<b>Concept</b>	<b>[ t ; T ]</b>	<b>Concept</b>	<b>[ t ; T ]</b>
Δ Working capital Δ Non-current assets (net of depreciations and amortizations)		Δ Non-current liabilities Δ Equity	

The rationale for these changes lies on the analyst's need of dealing with incremental cash flows, that is to say, those cash flows that come to existence and are explained by events that only take place along the planning horizon.

But there is still another reason for this course of action. The reallocation of current liabilities will keep them apart from medium- and long-term liabilities, which is a prime target when valuing investment decisions over a multi-periodic horizon.

Therefore, the right side of the incremental balance exhibits the mid- and long-termed sources of finance, namely banks, institutional investors, bondholders, and equity holders<sup>14</sup>. In contrast, the left side of the information box above comprehends operating assets and liabilities on the one hand, and non-current assets on the other (mainly fixed and intangible, but also financial assets issued by other companies, governments, or banks).

Once the incremental balance has been rounded off, the analyst will resort to a simplified Income Statement, as shown below.

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<sup>14</sup> Under this label we include holders of ordinary or preferred stock when the organization is a corporation. For another sort of organizations, we would be speaking about partners, beneficiaries, owners, and the like.

<b>COMPACT INCOME STATEMENT</b>	
<b>Concept</b>	<b>Remarks</b>
<i>Ordinary and extraordinary income</i> <i>minus all-inclusive costs</i> <i>minus depreciation and amortization charges</i>  <b>EBIT</b> ( <i>earnings before interest on</i> <i>non-current liabilities and taxes</i> )  <i>minus interest on non-current liabilities</i> <b>EBIT</b> ( <i>before taxes</i> )  <i>minus taxes</i> <b>Net Income</b>	1.- Depreciation and amortization are charges that reflect the consumption of fixed assets and intangibles. They become tax-deductible, although not being actual cash outlays.  2.- Interest on current liabilities are disclosed above the <b>EBIT</b> line, as operating costs.  3.- Interest on non-current liabilities are disclosed below the <b>EBIT</b> line, to take advantage of tax deduction. They will become a key component among the cash flows addressed to creditors.
<b>Net income allocation</b> <ul style="list-style-type: none"> <li>▪ <i>to dividends</i></li> <li>▪ <i>to retained earnings</i></li> </ul>	

Next, we move onto a distinctive construct for the assessment of economic value creation, a procedure grounded on the following assumptions:

- a) **EBIT** turns out by subtracting cost charges from income sources. Hence, it is a residual category that amounts to cash flows available to the company.
- b) As regards interest on non-current liabilities, the analyst subtracts them from **EBIT** before figuring out taxes.
- c) On the other hand, depreciation and amortizations are not cash outlays albeit they have been disclosed like another cost so as to profit from the tax shelter<sup>15</sup>. Hence, this money is brought back to the pool of available cash flows.
- d) Accordingly, we arrive at a new cash-flow residual

$$\mathbf{EBIT - taxes + depreciation + amortization}$$

---

<sup>15</sup> The charge also reflects, it goes without saying, the “consumption” of the fixed asset as time passes by.

that is called “**operating cash flow**”<sup>16</sup> but which cannot be regarded as a proxy of value creation yet: for instance, we have to make provisions for the management of working capital along the horizon.

- e) By the same token, we also need to set aside provisions for non-current assets, embracing the main components of this cash-flow construct: fixed assets, intangibles, and, extremely relevant indeed, non-current financial assets purchased by the company to hoard securities as a cushion for future growth opportunities or to meet contractual liabilities on their due date at further maturities.
- f) In the end, we attain an ultimate residual free of costs and provisions, which renders the expected value creation of the company. It is usually denoted “**incremental cash flows generated by assets**”.

<b>Incremental cash flows generated by assets</b>	
<b>Δ CF(from assets)</b>	
<b>Cash Flows</b>	<b>Remarks</b>
<b>EBIT</b> minus taxes plus depreciation and amortization charges	residual income, assumption a) assumption b) assumption c)
<b>Δ CF(operating cash flows)</b> minus provisions for working capital minus provisions for non-current assets	residual income, assumption d) assumption d) assumption e)
<b>Δ CF(from assets)</b>	assumption f)

After bringing about the incremental cash flows from assets, the analyst proceeds to apportion this residual between creditors and stockholders.

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<sup>16</sup> It must be noticed that we have not subtracted interest on non-current liabilities from operating cash flows because the former will be allocated into the composite of cash flows delivered to creditors.



i. Cash flows addressed to creditors

This is a compound of four cash flows delivered to or received from creditors<sup>17</sup>:

<i>Interest payments</i>	they can be regarded as cash flows handed out to creditors
<i>Principal payments</i>	they are also cash flows to creditors
<i>Debt repurchase</i>	the company can repay a bank loan in advance, or repurchase standing bonds before their maturity date, hence sending money to creditors.
<i>New debt</i>	to be issued within the planning horizon, by which creditors lend money to the company.

In this way, cash flows to creditors arise out of the following structure:

$$\Delta \text{CF}(\text{to creditors}) = \text{interest} + \text{principal} + \text{debt repurchase} - \text{new debt}$$

ii. Cash flows addressed to stockholders

In the case of stockholders, the company will give cash flows out to them under the guise of dividends or stock repurchase, whereas it will receive money out of new stock placements. In other words,

$$\Delta \text{CF}(\text{to stockholders}) = \text{dividends} + \text{stock repurchase} - \text{new stock}$$

After the distribution has been wholly accomplished, the incremental cash-flow model makes its way as a matter of course.

**Definition 3 Incremental cash-flow model**

*For any planning horizon  $H = [t; T]$ , by the incremental cash-flow model is meant that the following relationship among incremental cash flows holds true*

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<sup>17</sup> Corporate Finance practitioners take an opposite convention to the one followed by either the Treasurer or the Accountant in the company: cash outflows to creditors will carry a positive while inflows from creditors a negative sign. To all intents and purposes, the positive sign conveys the meaning that we are distributing cash flows from assets.

$$\Delta CF(\textit{from assets}) = \Delta CF(\textit{to creditors}) + \Delta CF(\textit{to stockholders})$$

Next section will set forth the connection between variables of governance and incremental cash flows. Before doing that, however, the incremental cash-flow model has to be enlarged so as to include not only creditors and stockholders, but also two other blocks of cash flows at the root of governance risks, namely

- cash flows routed to managers and directors, primarily lodged above the **EBIT** line and charged as forthcoming expenses;
- cash flows allocated to provisions for non-current assets under the label of financial non-current assets and below the line of cash flows from operations.

We are going to draw both of them out of  $\Delta CF(\textit{from assets})$ , where they are affected with a minus sign, and add them up on the right side of the incremental model. Therefore, we get:

$$\begin{aligned} & \Delta CF(\textit{from assets; net}) = \Delta CF(\textit{to creditors}) + \Delta CF(\textit{to stockholders}) \\ & + \Delta CF(\textit{to managers and directors}) + \Delta CF(\textit{non-current financial assets}) \end{aligned} \tag{2}$$

It can be noticed in (2) that cash flows from assets will remain netted since we have taken away from it not only cash flows tied to managers and directors, but also those intended for the setting up of the company's investment portfolio.

#### **4. MEASURING GOVERNANCE RISKS AGAINST INCREMENTAL CASH FLOWS**

In section 2, we pointed that governance variables encompass those primarily linked to governance actors on the one side, and those that entail consequences for the governance structure on the other.

Let us draft a matrix of eight rows attached to the governance variables and five columns that stand in for the cash flows displayed by (2), that is to say, the enlarged frame of the incremental cash-flow model. In short, each cell in the matrix is the junction of one governance variable with one type of incremental cash flow.

MATRIX OF SENSITIVITIES BETWEEN GOVERNANCE VARIABLES AND INCREMENTAL CASH FLOWS					
	$\Delta CF$ (assets, net)	$\Delta CF$ (creditors)	$\Delta CF$ (stockholders)	$\Delta CF$ (managers and directors)	$\Delta CF$ (non-current financial assets)
$G_1(s) = \text{stockholders (t)}$					
$G_2(s) = \text{directors (t)}$					
$G_3(s) = \text{managers (t)}$					governance risk
$G_4(s) = \text{creditors (t)}$					
$G_5(s) = \text{governancearchitecture}$					
$G_6(s) = \text{conflicts of interest}$					governance risk
$G_7(s) = \text{deviant governance}$					governance risk
$G_8(s) = \text{overlooking andcompliance}$					governance risk

### *Example*

*When the third row of the matrix meets the fifth column, at least three facts can be asserted:*

- a)  $G_3$  is a time-scaled governance variable involved with the fiduciary duties and decision rights on behalf of managers, as well as their performance and incentives.*
- b)  $\Delta CF(\text{non-current financial assets})$  refer to cash flows over which managers and directors bring into play a wide range of discretionary power. They shift cash from idle balances and invest it in financial assets issued by companies, governments or banks, all of them with medium- or long-term maturities.*
- c) Decision-making related to  $G_3$  shapes the actual amount of cash flows allocated to non-current financial assets. That is why the sensitivity of these cash flows to  $G_3$  is marked, in the matrix above, with the expression “governance risk”.*

Afterwards, we should look into the relationship between  $G_6$ , a variable conveying conflicts of interests, with the same column as before. In this cell, some features stand out.

- d) *Managers that intend to keep a rising stock of non-current financial assets may signal their entrenchment with heavy balances of liquid assets, whereas stockholders would have preferred to undertake riskier investment projects, or be handed out more dividends.*
- e) *It also can tell us that the Board may be committed to build up available money to repurchase debt or stock, against the course advised by managers to apportion those cash balances in new growth opportunities.*

Let us move on to the cell where  $G_7$  comes across the same column of non-current financial assets. In this case, we can also draw some inferences:

- f) *The scope of  $G_7$  is not only broad but also pervasive; it actually comprises manifold varieties of deviant behavior among which we can highlight rent-seeking, soft-budget constraints, and tunneling.*
- g) *On the other hand, and as we saw in b) above, the main characteristic of  $\Delta CF(\text{non-current financial assets})$  is that of being under the managers' primary control.*
- h) *Whereas a heavy allocation of money to this block of cash flows might be explained away by well-grounded reasons (hoarding, investment, stocking up resources for future outlays), a deviant usage of non-current financial assets may convey a hidden agenda for rent-seeking and soft-budget constraints: by setting apart money to pay managers lavish compensation packages, or by incurring in what is denoted "agency consumption" (new buildings and luxurious offices; vehicles, travel and hotel disgraceful expenses; buying corporate jets or ships; designing perk benefits for the enjoyment of managers, directors, even big stockholders<sup>18</sup>).*

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<sup>18</sup> Bebchuk and Fried (2003) stress two further developments on this problem: the outrage effect, and the camouflage device.

*Lastly, we can also discuss what happens when the variable of governance  $G_8$  interacts with  $\Delta CF$ (non-current financial assets):*

- i) If the allocation of cash flows to non-current assets cannot adequately be explained then regulators or gatekeepers could suspect foul play on the side of managers and directors, who could be blamed for likely misdoing or lack of compliance with rules and good practices.*

*Summing up, cash flows committed to non-current financial assets as the matrix above shows forth, are highly sensitive to governance variables related to managers, conflicts of interest, deviant behavior, overlooking and compliance.*

## **5. APPLICATION: HOW TO MEASURE GOVERNANCE RISKS BY MEANS OF THE INCREMENTAL CASH-FLOW MODEL**

A detailed practice follows to illustrate how governance risks can be appraised with the help of the incremental cash-flow model. For the sake of clarity, it will be unfolded into stages. Two reports will be included; a first one devoted to find out the weakest points in the assessment of incremental cash flows at date  $t$  that could trigger off governance risks along the horizon. The second will measure governance risks when we reach date  $T$ , by drawing up an after-the-fact contrast between assessed and realized values.

### ***Stage 1.- The Setting***

Let us assume that the Board of Directors of a non-financial company requests the CFO to produce a statement of incremental cash flows to be assessed at the onset of a planning horizon  $H = [ t; T ]$  that spans a year ahead.

### ***Stage 2.- The choice of information inputs***

It will be for the CFO to work out the required statement by means of a balance sheet updated to the closest date before  $t$ , a budgeted Income Statement, and the estimated balance sheet for date  $T$ . Afterwards, he will fill in three working sheets to extrapolate cash flows from assets, to creditors, and to stockholders.

<b>Balance Sheet at date t, and expected balance sheet at date T (in millions)</b>					
<b>Concept</b>	<b>t</b>	<b>T</b>	<b>Concept</b>	<b>t</b>	<b>T</b>
Current assets	100	120	Current liabilities	80	100
Non-current assets (net of depreciation and amortizations)	900	1,000	Non-current liabilities Equity	300 620	300 720
Total Assets	1,000	1,120	Total Liabilities and Equity	1,000	1,120

***Expected Income Statement over the planning horizon (in millions)***

Income	2,938
minus costs	2,100
minus depreciation fixed assets	100
Ebit (earnings before interest on non-current liabilities and taxes)	738
minus interest on non-current liabilities	60
Ebit (after interest on non-current liabilities)	678
Taxes [ 35% out of Ebit (after interest) ]	237
Net Income	441

***Expected Net Income allocation (in millions)***

To dividends	200
To retained earnings	241

***Stage 3.- Drawing up the incremental cash-flow model  
contingent on the information set I( t ).***

*a) Worksheet 1*

<b>Worksheet 1: Cash flows from assets</b>	
<b>Incremental cash flow</b>	<b>Value</b>
Ebit	738
minus taxes	237
plus depreciation	100
<b>Δ CF(operating cash flows)</b>	601
minus provisions for working capital	0
minus provisions for non-current assets	200
<b>Δ CF(from assets)</b>	401

<b>Additional information on working capital</b>			
<b>Concept</b>	<b>Date t</b>	<b>Date T</b>	<b>Increment</b>
current assets	100	120	20
current liabilities	80	200	20
working capital increment	20	- 20	0
		Provisions for working capital	0

<i>Additional information on non-current assets</i>			
<b>Concept</b>	<b>Date t</b>	<b>Date T</b>	<b>Increment</b>
Non-current assets (from the balance sheet)	900	1,000	100
Non-current financial investment	200	300	100
Non-current fixed assets (gross)	1,200	1,300	100
Retained depreciation	500	600	100
Non-curren fixed assets (net)	700	700	0
Provisions for non-current assets (the balance sheet nets out at 100, whereas provisions take into account the depreciation)			200

*b) Worksheet 2*

<i>Worksheet 2: Cash flows to creditors</i>	
<b>Incremental cash flow</b>	<b>Value</b>
Interest	60
plus debt principal	150
plus debt repurchase	150
minus new debt	300
<b>Δ CF(to creditors)</b>	<b>60</b>

<i>Additional information for creditors</i>			
<b>Concept</b>	<b>Date t</b>	<b>Date T</b>	<b>Increment</b>
Non-current liabilities (from the balance sheet)	300	300	0
<b>Remarks</b>			
<i>a) debt with banks</i>		<i>b) debt with bondholders</i>	
principal	50	principal	100
debt repurchase	50	debt repurchase	100
new debt with banks	100	new debt with bondholders	200

*c) Worksheet 3*

<i>Worksheet 3: Cash flows to stockholders</i>	
<b>Incremental cash flow</b>	<b>Value</b>
Dividends	200
plus repurchase of stock	295
minus new stock	154
<b>Δ CF(to stockholders)</b>	<b>341</b>

<i>Additional information for stockholders</i>			
<b>Concept</b>	<b>Date t</b>	<b>Date T</b>	<b>Increment</b>
Equity (from the balance sheet)	620	720	100
<b>Source of equity changes:</b>			
a) new stock	154	b) repurchase of stock	295
		c) retained earnings	241

From worksheets 1 through 3 we must verify that the incremental cash flow equation holds.

$$\Delta CF(\text{from assets}) = 401$$

$$\Delta CF(\text{to creditors}) + \Delta CF(\text{to stockholders}) = 60 + 341 = 401$$

***Stage 4.- Governance Risks Report at date t [contingent on the information set I(t) ]***

The report will focus on three issues:

- a) how do cash flows from assets get actually distributed?
- b) how much do creditors and stockholders receive at last?
- c) what sort of preliminary conclusions should be derived eventually?

Cash flows from assets and primary distribution

The expected value creation appraised by the analyst amounts to

$$\Delta CF(\text{from assets}) = 401$$

How does the company intend to distribute them? It goes without saying that contractual liabilities come first:

$$\text{interest} + \text{principal} = 60 + 150 = 210$$

As we see, they could be paid outright from cash flows from assets.

Secondly, we see that the Board decided to distribute dividends that can also be funded with cash flows from assets,

$$\text{dividends} = 200$$



## Cash flows to creditors and stockholders

If we now turned to new debt and stock provisions, they would paint a misleading picture:

$$\text{new debt} + \text{new stock} = 300 + 154 = 454$$

What would be the underlying target of such issuance? The most comforting answer would point to a new investment. Notice that assessed provisions to non-current assets can be split down into the following charges:

Non-current financial assets	100
Fixed assets	100

Hence, the new financing does not meet any sensible investment target, whereby the focus of inquiry should be shifted towards cash-flow blocks linked with creditors and stockholders, namely

$$\text{debt repurchase} + \text{stock repurchase} = 150 + 295 = 445$$

Does it seem plausible that the company requests money from creditors and stockholders to engineer a comprehensive repurchase operation. If this were the case, some thorny questions would arise:

- a) does the company attempt to finance this operation on considered judgements?
- b) or does the company resort to this mechanism because is contriving a deviant behavior like rent-seeking and soft budget constraints?

To play on the safest side, the company should hedge this substantial repurchase operation with cash flows from assets. But for doing that, the latter should be topped out at 846 instead of 401. This is not the case, however. Hence, either the senior management or the board is liable to explain the rationale of taking such a huge level of debt and new

stock. Otherwise, they could be purposefully misrepresenting the facts for the achieving of underhand dealings, namely

- a) repurchasing debt to take advantage of lower bond prices, washing out liabilities of the balance sheet as well as interest payments in forthcoming income statements;
- b) repurchasing stock to get rid of troublesome shareholder's minorities, or to remove the company from being listed in certain stock exchange;
- c) requesting new investors to help the company reshape the quality and sources of old finance without starting a countervailing investment project.

Preliminary conclusions

- i) There are governance risks that come out of decisions regarding cash flows to creditors and stockholders, mainly around new finance.
- ii) The board and senior management should explain about practices that foster governance risks.
- iii) It seems advisable to go through what is going to happen at date **T**.

**5.- Risk position analysis between the expected and realized cash flows at date T**

<i>Expected Balance Sheet at date t and realized Balance Sheet at date T (in millions)</i>					
<b>Concept</b>	<b>T</b>	<b>T</b>	<b>Concept</b>	<b>T</b>	<b>T</b>
Current assets	100	120	Current liabilities	80	200
Non-current assets (net of depreciation and amortizations)	900	1,500	Non-current liabilities	300	700
			Equity	620	720
Total Assets	1,000	1,620	Total Liabilities and Equity	1,000	1,620

**Income Statement (in millions)**

Income	2,900
minus costs	1,900
minus depreciation fixed assets	100
Ebit (earnings before interest on non-current liabilities and taxes)	900
minus interest on non-current liabilities	60
Ebit (after interest on non-current liabilities)	840
Taxes [ 35% out of Ebit (after interest) ]	294
Net Income	546

*Net Income allocation (in millions)*

To dividends	400
To retained earnings	146

a) *Worksheet 1*

<i>Worksheet 1: Cash flows from assets</i>	
<b>Incremental cash flows</b>	<b>Value</b>
Ebit	900
minus taxes	294
plus depreciation	100
<b>Δ CF(operating cash flows)</b>	706
minus provisions for working capital	(100)
minus provisions for non-current assets	700
<b>Δ CF(from assets)</b>	106

<i>Additional information on working capital</i>			
<b>Concept</b>	<b>Date t</b>	<b>Date T</b>	<b>Increment</b>
current assets	100	120	20
current liabilities	80	200	120
working capital increment			-100
Provisions for working capital			-100

<i>Additional information on non-current assets</i>			
<b>Concept</b>	<b>Date t</b>	<b>Date T</b>	<b>Increment</b>
Non-current assets (from the balance sheet)	900	1,500	600
Non-current financial investment	200	700	500
Non-current fixed assets (gross)	1,100	1,300	200
Retained depreciation	400	500	100
Non-current fixed assets (net)	700	800	100
Provisions for non-current assets (the balance sheet nets out at 600, whereas provisions take into account the depreciation)			700

b) *Worksheet 2*

<i>Worksheet 2: Cash flows to creditors</i>	
<b>Incremental cash flow</b>	<b>Value</b>
Interest	60
plus debt principal	150
plus debt repurchase	150
minus new debt	700
<b>Δ CF(to creditors)</b>	-340

<i>Additional information for creditors</i>			
<b>Concept</b>	<b>Date t</b>	<b>Date T</b>	<b>Increment</b>
Non-current liabilities (from balance sheet)	300	700	400
<b>Remarks</b>			
a) debt with banks		b) debt with bondholders	
principal	50	principal	100
debt repurchase	50	debt repurchase	100
new debt with banks	100	new debt with bondholders	600

*c) Worksheet 3*

<i>Worksheet 3: Cash flows to stockholders</i>	
<b>Incremental cash flow</b>	<b>Value</b>
Dividends	400
plus repurchase of stock	200
minus new stock	154
<b>Δ CF(to stockholders)</b>	<b>446</b>

<i>Additional information for stockholders</i>			
<b>Concept</b>	<b>Date t</b>	<b>Date T</b>	<b>Increment</b>
Equity (from balance sheet)	620	720	100
<b>Source of equity changes:</b>		b) repurchase of stock	200
a) new stock	154	c) retained earnings	146

**Stage 6.- Governance Risks Report at date T [contingent on the information set I(T) ]**

In contrast with the report developed in stage 4, this one will carry out a comprehensive analysis of governance risks shown forth by the incremental cash flow model. The risk position was open at date **t** and was brought into completion at date **T**.

The report will check out the following features:

- a) how have cash flows from assets been distributed?
- b) what can be said about the ultimate application of cash flows to creditors and stockholders?
- c) critical analysis of the risk position
- d) final conclusions

### Cash flows from assets and primary distribution

The first step consists in comparing the ex ante and the ex post valuations.

$$\text{Ex ante} \quad \Delta \text{ CF}(\text{from assets}) = 401$$

$$\text{Ex post} \quad \Delta \text{ CF}(\text{from assets}) = 106$$

Almost every ex ante assessment will differ from the corresponding ex post one. But here we have a deep fall in value creation that deserves to be explained. Let us move on contractual liabilities.

$$\text{Ex ante} \quad \text{interest} + \text{principal} = 60 + 150 = 210$$

$$\text{Ex post} \quad \text{interest} + \text{principal} = 60 + 150 = 210$$

To start with, cash flows from assets are only half the level of due contractual liabilities. Moreover, when we shift our analysis to cash flows distribution on behalf of stockholders, we bump into a far-reaching discrepancy:

$$\text{Ex ante} \quad \text{dividends} = 200$$

$$\text{Ex post} \quad \text{dividends} = 400$$

Dividends have doubled the amount predicted at the onset of the horizon, and the Board has to give reasons for such increase in dividends while the company was facing a deep fall in cash flows from assets.

### Cash flows to creditors and stockholders

So far, the analysis has unveiled that something may be wrong within the company's governance. In search of better understanding, let us take a look at new funding needs:

$$\text{Ex ante} \quad \text{new debt issue} + \text{new stock issue} = 300 + 154 = 354$$

$$\text{Ex post} \quad \text{new debt issue} + \text{new stock issue} = 700 + 154 = 854$$

This is a rather amazing outcome. While stock issue does not show any change at all, the new debt has more than doubled the ex ante value. It seems worthy of being checked whether any unexpected investment decision may throw light on such a huge gap between ex ante and ex post debt levels.

$$\text{Ex ante} \quad \text{non-current financial assets} + \text{fixed assets} = 100 + 100 = 200$$

$$\text{Ex post} \quad \text{non-current financial assets} + \text{fixed assets} = 500 + 200 = 700$$

The comparison uncovers the fact that almost half as much of the new debt has been channeled to non-current financial assets or, still worse, cash flows from operations might have been diverted into a window-dressing exercise. In the latter setting, instead of financing a new investment project, managers would have been pursuing a liquidity hedge-fund. Last of all, let us examine what happened with debt and stock repurchases.

$$\text{Ex ante} \quad \text{debt repurchase} + \text{stock repurchase} = 150 + 295 = 445$$

$$\text{Ex post} \quad \text{debt repurchase} + \text{stock repurchase} = 150 + 200 = 350$$

The preliminary report, in stage 4, had already posted a warning about the unusual level of repurchase made available under the guise of new debt and stock issuance. Albeit the level has fallen down, the actual figure is three times the amount of expected value creation.

#### Critical analysis of the risk position

- a) Value creation plummeted far below the expected level, not only because income has been lower, but mainly on the grounds of heavy non-productive provisions for non-current financial assets.

b) A second, but related problem is that repurchase of debt and stock tripled cash flows from assets, whereas the whole operation has been financed with new debt and stock placements.

c) Dividends doubled the expected value, taking advantage of new debt and stock issuance.

### Conclusions

An arguable and failing performance brings upon serious concerns about the governance of this company. On the other hand, it also raises burning questions about the Board and managers corporate practices.

### **SUMMARY**

For any organization, its governance entails risks stemming from its own nature. In point of fact, governance lies on a set of categories of analysis that can be mapped onto time-scaled variables that foster risk-positions.

In this paper, we have learnt how to measure governance risks by means of the incremental cash-flow model. Along any planning horizon there evolves a joint development between the time-scaled governance variables and incremental cash flows.

A common thread runs through the governance structure and the human agency of incremental cash flows, from which governance risks may compound at the end of the day, either for good or for ill.

## REFERENCES

Apreda, R. (2008) *Who is the Ultimate Master of Contractual, Regulatory, Discretionary and Residual Cash Flows? An Answer from the Standpoint of Corporate Governance*. Working Paper Series, number 368, University of Cema.

(downloadable from [www.cema.edu.ar/publicaciones/documentos](http://www.cema.edu.ar/publicaciones/documentos) and [www.ssrn.org](http://www.ssrn.org))

Apreda, R. (2007a) *Factoring Governance Risks into Investors' Expected Rates of Returns by Means of a Weighted Average Governance Index*. Working Paper Series, number 356, University of Cema.

(downloadable from [www.cema.edu.ar/publicaciones/documentos](http://www.cema.edu.ar/publicaciones/documentos) and [www.ssrn.org](http://www.ssrn.org))

Apreda, R. (2007b) *Compliance Risk and the Compliance Function could Enhance Corporate Governance not only in Banks but in other kind of Organizations as well*. Corporate Ownership and Control, volume 4, number 3, pp. 146-152. (downloadable from [www.cema.edu.ar/u/ra](http://www.cema.edu.ar/u/ra))

Apreda, R. (2006) *The Semantics of Governance*. Corporate Ownership and Control, volume 3, number 2, pp. 45-53. (downloadable from [www.cema.edu.ar/u/ra](http://www.cema.edu.ar/u/ra))

Apreda, R. (2004) *Corporate Rent-Seeking and the Managerial Soft-budget-constraint*. Working Paper Series, number 283, University of Cema.

(downloadable from [www.cema.edu.ar/publicaciones/documentos](http://www.cema.edu.ar/publicaciones/documentos) and [www.ssrn.org](http://www.ssrn.org))

Apreda, R. (2002a) *Incremental Cash Flows, Information Sets, and Conflicts of Interest*. Working Paper Series, number 220, University of Cema.

(downloadable from [www.cema.edu.ar/publicaciones/documentos](http://www.cema.edu.ar/publicaciones/documentos) and [www.ssrn.org](http://www.ssrn.org))

Apreda, R. (2002b) *The Governance Slack Model: A Cash Flow Approach for the Budgeting and Accountability of Some Corporate Governance Issues*. Working Paper Series, number 212, University of Cema.

(downloadable from [www.cema.edu.ar/publicaciones/documentos](http://www.cema.edu.ar/publicaciones/documentos) and [www.ssrn.org](http://www.ssrn.org))

Apreda, R. (1999a) *A Corporate Finance Cash Flow Model with Float*. Working Paper Series, number 142, University of Cema.

(downloadable from [www.cema.edu.ar/publicaciones/documentos](http://www.cema.edu.ar/publicaciones/documentos) and [www.ssrn.org](http://www.ssrn.org))

Apreda, R. (1999b) *Withe Cash Flow Model with Float: A New Approach to Deal with Valuation and Agency Problems*. Journal of Applied Economics, volume 2, number 2, pp. 247-279.

(downloadable from [www.cema.edu.ar/publicaciones/](http://www.cema.edu.ar/publicaciones/))

Bebchuck, L. and Fried, J. (2003) *Executive Compensation as an Agency Problem*. Journal of Economic Perspectives, volume 17, pp. 71-92. (downloadable from [www.jstor.org](http://www.jstor.org))

Doignon, J. P. and Falmagne, J. C. (1999) *Knowledge Spaces*. Springer Verlag, Berlin and New York.

Ross, S.; Westerfield, R.; Jordan, B. (1995) *Fundamentals of Corporate Finance*. Irwing, New York, third edition.

Williamson, O. (1996) *The Mechanisms of Governance*. Oxford University Press, New York.

Williamson, O. (1988) *Corporate Finance and Corporate Governance*. The Journal of Finance, volume 43, pp. 567-591. (downloadable from [www.jstor.org](http://www.jstor.org))