OPERATIONAL RISK, MARKET RISK AND VALUE OF THE ASSET MANAGERS

Maurizio Polato *, Giulio Velliscig **

* *Corresponding author*, Department of Economics and Statistics, University of Udine, Udine, Italy
Contact details: Department of Economics and Statistics, University of Udine, Via Francesco Tomadini 30/A, 33100 Udine, Italy
** Department of Economics and Statistics, University of Udine, Udine, Italy

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Abstract

Asset management has been one of the fastest-growing industries in the financial industry for a long time (Bigelli & Manuzzi, 2019). Moreover, after the eruption of the financial turmoil in 2008, financial intermediation has been characterized by a rapid increase in the role of the asset management industry. This paper aims to analyse the determinants of asset manager value and, in particular, it is focused on the value implicit in the assets under management. Starting from the works by Huberman (2005) and Joenväärä and Scherer (2017) the paper proposes a model for determining the enterprise value (*EV*) of asset managers by assessing the role of the contribution margin and the degree of risk (operational and market risk). As noted by Scherer (2008), following the financial crisis, asset management companies suffered a decline in profits, also due to the exposure of their revenues to the market risk. Although, as it's known, the asset management firms are not directly subject to the market (and credit) risk, their revenues are exposed to the market risk, not only to the operational risk that had been thought of as the main risk factor (Hull, 2007). Management companies, in fact, operate in a cyclical context closely linked to the performance of the financial markets, which contributes to determining the size and volatility of the assets under management (*AuM*). Starting from a discounted cash flow (DCF) asset side model, a simple stochastic Monte Carlo simulation is provided in order to capture the relevance of the asset under management return and volatility and, therefore, the volatility of the benchmark return and management style. In this theoretical framework, the key point is that the enterprise value depends on the specific asset class the firm is involved with. Given the asset class, the enterprise value depends on the management style also.

Keywords: Asset Management, Beta, Economic Performance, Enterprise Value

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1. INTRODUCTION

A crucial role in the value chain of the securities industry is played by the asset management companies that produce the managed products, which are then distributed by financial intermediaries under specific agreements and/or directly (including online). For some years, important aspects of discontinuity have affected the global asset management industry; environmental sustainability and technology seem to define the main lines along which new business models are developing (OliverWyman, 2021).

As noted by Scherer (2008), following the financial crisis, asset management companies suffered a decline in profits, also due to the exposure of their revenues to the market risk, and not only to the operational risk that had been thought of as the main risk factor (Hull, 2007).

A very important topic is, therefore, the asset manager's value and the impact of market risk. To analyse the impact of the market risk on enterprise value (*EV*), and so to try to fill the literature gap, starting from a standard discounted cash flow (DCF) asset side model, a simple stochastic approach (based on Monte Carlo simulations) is provided. The aim is to capture the relevance of the assets under management (*AuM*) return and volatility and, therefore, the volatility of the benchmark return and management style.

The paper's findings highlight how market risk can affect (even significantly) the *growth rate* of the *AuM*, and, therefore, the creation of value; besides, by observing a sample of listed international asset managers (in the period 2011–2020) it will be easy to detect substantial stability of the value of the multiple (*EV/AuM*) in the *absence of growth*, which develops a greater impact over time, considering (*ceteris paribus*) the progressive reduction in the *growth value*. The paper underlies some significant managerial implications too. In particular:

1. Hedging the *market* risk, implicit in the mechanism for determining commission income, emerges as advisable conduct for the managers; this profile has traditionally been considered of little relevance in the economy of asset management companies.

2. It is also essential for managers to promote the containment of *fixed costs* and to defend *contribution margins*, in a context in which there are strong pressures on profitability.

The structure of this paper is as follows. Section 2 reviews the relevant literature. Section 3 analyses the methodology that has been used to conduct the research on *EV/AuM* multiple building upon the works by Huberman (2005), Joenväärä and Scherer (2017). Section 4, discusses the results on an empirical ground proposing an example of the relationship between the synthetic formulation of the *EV/AuM* multiple and the volatility of the *AuM* return (and, therefore, the volatility of the benchmark return and management style) and a simple Monte Carlo simulation. Section 5 concludes

2. LITERATURE REVIEW

The idea that financial firms differ significantly from other firms is well recognised among scholars and practitioners (Damodaran, 2013) and the literature concerned with the investigation of the value drivers of financial firms is mostly related to the banking sector, for three crucial reasons.

The first issue regards the pervasive regulatory context within which banks operate and that is declined along three different dimensions[1].

The second aspect is the different role of debt: while in non-financial companies' debt is assumed essentially as a funding instrument to use to make investments, in banks it serves a function of a *raw material* which includes only equity capital (Damodaran, 2013). Indeed, in the banking sector, it is not possible to provide a clear distinction between financial debt, which is assumed as a source of value, and operational debt. In fact, as highlighted by Beltrame and Previtali (2016), the strong binding between funding policies and asset-side operations, makes it unrealistic to obtain a certain estimation of different measures in financial firms such as the net working capital, capital expenditures and the cost of capital.

Finally, the third issue is related to the differences in the accounting principles, which in the case of financial service firms diverge significantly compared to other companies. Indeed, financial firms' assets include essentially financial instruments, which are mostly priced within regulated markets. Consequently, assets' valuation is based on their market value instead of the original cost, causing several differences in the assessment of the value drivers (Damodaran, 2013).

The peculiarity of the *production processes*, as well as the relevance of the regulation, is reflected, naturally, in the valuation approaches by financial intermediaries. Among the various criteria for quantifying *economic capital*, empirical evidence indicates that *financial criteria* and *comparative (multiple) market criteria* have been increasingly used. In determining the value of *non-financial* companies, the *asset side* methods are usually preferred; for bank financial intermediaries, on the contrary, since *financial liabilities* are not extraneous to the *ordinary operations*, approaches entirely based on the asset side methods probably appear inconsistent (Rutigliano, 2018).

Focusing on the particular case of asset management firms, these provide consultancy advice and manage portfolios for clients, their earnings ensue from advisory revenues and from management and sales fees for asset portfolios.

Notwithstanding within the asset management industry investment firms are significantly different in several aspects: size, type of managed investment, investing policy and regulatory issues, scholars argued that the differences compared to non-financial firms are much lower than the other financial companies (banks and insurance companies, etc.). Massari, Gianfrate, and Zanetti (2014) support this idea highlighting as, from an operational perspective, the financial statement of asset management companies is essentially similar to other non-financial service companies and there is not a greater role of finance-specific items (loans and deposits). In particular, the role of debt is substantially equivalent to that of non-financial firms, indeed asset management firm's liabilities can

[1] Banks are primary subjected to exogenous regulatory mechanisms, aimed to establish minimum capital requirements (Basel regulatory framework) with the objective to absorb losses, prevent insolvency and safeguard depositors and claimholders. The second form of regulation has instead the objective to set boundaries to the business activities with the purpose to limit excessive risk-taking and moral hazard incentives, by ensuring the stability and the resilience of the financial system. Finally, regulators point to supervise the mergers and acquisition processes, likewise the access of new players within this sector is strictly regulated by authorities in order to not threaten the fragile equilibrium that characterize the financial intermediation segment.

be assumed at the same level as the operating debts of non-financial firms.

Thus, while in the case of banks the literature has proved to be skeptical concerning the possible applicability of the Modigliani and Miller (1958) theorem, in relation to the liquidity provider function carried out by banks and the strong connection between deposits and short-term assets, in the peculiar case of asset managers the Modigliani and Miller (M-M) theorem seems to be applicable and the only limitations which incur are related to the unrealistic baseline assumptions from which the M-M theorem based on (frictionless markets and absence of bankruptcy costs, etc.).

Turning to the point, it's to say that the empirical literature concerned with the valuation of asset management firms is relatively scant.

Huberman (2005) relying on the assumption of the infinite growth of the managed funds (under this assumption the amount of fees has no impact on the asset management firm's value) and applying a *dividend discount model*, shows the net present value of an asset management firm is the function of the market value of their assets under management, multiplied for the profit margin of the firm. More precisely, Huberman's (2005) model assumes that the expected annual return (r) of the *AuM*, the related management fee (f) and the profit margin on revenues (q) are known. Assuming growth in the *AuM* commensurate with the rate of return (net of management fees), it quantifies the value of the management company (P) discounting (at the rate of return of the benchmark, which is assumed to coincide with r the perpetual flow of profits[2].

Even though empirical results highlight as the operating margin of firms ranges between 20% and 30%, the market capitalization is approximately only in the 3%–8% margin of the *AuM*. This represents the so-called Huberman puzzle.

In order to solve the Huberman puzzle, Joenväärä and Scherer (2017), starting from the work done by Berk and Green (2004)[3], developed a model that discounts further assumptions[4]. More generally, Joenväärä and Scherer (2017) use a steady-state model assuming that the optimal *AuM* size (*AuM**) and the constancy of the parameters f and q have been reached[5].

Joenväärä and Scherer (2017) tested the proposed analytical approach and demonstrated its greater interpretative capability[6]. Nevertheless, this model, too, does not explicitly consider the risk profiles (on profit margins) underlying the exposure of the *AuM* to *market risk* and the high degree of *operational lev*erage of the asset management companies[7].

Although the asset management firms are not directly subject to the market (and credit) their revenues are exposed to the *market risk*, and not only to the *operational risk* that had been thought of as the main risk factor (Hull, 2007). Management companies, in fact, operate in a *cyclical* context closely linked to the performance of the *financial markets*, which contributes to determining the size and volatility of the assets under management.

A literature gap can, therefore, be found in the analysis of the impact of *market* (and *operational*) *risk* on the enterprise value. In order to fill the gap the paper proposes an example of the relationship between the synthetic formulation of the *EV/AuM* multiple and the volatility of the *AuM* return and, therefore, the volatility of the benchmark return and management style.

3. RESEARCH METHODOLOGY

The value of *AuM* grew remarkably over the last decade in Europe (see Table 1). The significant growth of the asset management sector is attributable to countless factors, also linked with the interventions (in terms of regulatory and monetary policies) made necessary to react against financial crises[8].

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[2] In the privileged hypotheses, the equity value can be expressed in the following terms: $P = AuM \times q$ (hence: $P / AuM = q$) and it is, therefore, independent of the specific types of asset classes in which the *AuM* are invested. The commission percentage applied is not a discriminant, either. The only relevant profile, in addition to the *AuM* amount, is the ability to transform commissions into profits (q). These conclusions, however, are not reflected in the empirical evidence that presents much lower market value/*AuM* multiples.

[3] Berk and Green (2004) highlight how the investment process of management companies is subject to diseconomies of scale (beyond a certain threshold, for the *AuM*). Such diseconomies suggest that, in all likelihood, management companies will tend not to increase assets under management after reaching the threshold that is considered optimal, beyond which marginal costs would exceed revenues. Pastor Stambaugh, and Taylor (2015) find strong empirical evidence of diseconomies of scale, pointing out a negative relation between industry size and fund performance, especially for funds with a higher turnover and volatility; the authors, therefore, emphasize the importance of the relative size within the asset management industry, rejecting the hypothesis of significant return on scale in active management.

[4] The main ones are: a) operators invest in funds that *outperform* their benchmarks; b) the managers face *diseconomies of scale* that push them to keep the managed assets below the threshold they consider optimal.

[5] Based on the assumptions made, discounting the profits at the risk-free rate (rf) over an infinite time horizon, the equity value (the multiple with respect to the *AuM*), is, therefore, equal to $\frac{AuM^* qf}{rf} \times (\frac{qf}{rf})$.

[6] On the basis of the data of 33 listed management companies (in the time period 1998–2013), it emerges that the factor q, alone (Huberman model), is not representative of the ratio between equity and assets under management of the management companies included in the sample. By considering both the fees (f) and the margin (q), it emerges that both variables of the model are almost always significant with high R^2 values (greater than 0.5 over thirteen years out of sixteen). The analysis also reveals that the beta is almost always not significant (with the exception of the years 2008 and 2009). On the other hand, these variables are of little significance in explaining the price to book value multiple.

[7] The issue of market risk is also present in Scherer's research work (2010, 2012), who assessed an approximation of the volatility (standard deviation) of management fees as a function of the volatility of the managed asset.

[8] The (ultra) expansive monetary policy, by drastically reducing the interest margin, has made traditional lending activities not very profitable, gradually forcing banks to focus their business model on low capital absorption activities. The profound demographic changes and the gradual transformation of the retirement systems have then influenced the savers' propensity to invest, including for social security purposes (Walter, 2016).

Table 1. Evolution of the *AuM* in Europe (data in trillions of USD)

Years	*2011*	*2012*	*2013*	*2014*	*2015*	*2016*	*2017*	*2018*	*2019*	*2020*
Mandates	7.2	8.2	8.6	10.1	10.5	10.7	10.8	10.6	11.1	13.05
Funds	6.4	7.2	7.9	10.2	11.1	12.1	13	12.5	14.7	15.37
Total	13.6	15.4	16.5	20.3	21.6	22.8	23.8	23.1	25.8	28.42
AuM/GDP	98%	106%	114%	131%	132%	137%	140%	134%	149%	166%

Following the financial crisis, asset management companies suffered a decline in profits, also due to the exposure of their revenues to the market risk, and not only to the operational risk that had been thought of as the main risk factor (Hull, 2007). A very important topic is, therefore, the asset manager's value and its determinants.

Starting from the works by Huberman (2005) and Joenväärä and Scherer (2017) the paper proposes a model for determining the enterprise value of asset managers for assessing the value of the contribution margin, and the degree of risk (operational and market risks). To analyse the impact of the market risk on enterprise value, starting from a standard DCF asset side model, a simple stochastic simulation is provided in order to capture the relevance of the *AuM* return and volatility and, therefore, the volatility of the benchmark return and management style.

Moving from the *accounting dimension* to the one of *value* implies (at least) the modeling of the dynamics of the *AuM*, of the (related) *commission margin*, of the operating costs, of the correlated *cash flows* and of the *opportunity cost* of capital. To begin with, using the symbols clarified in Table 2, it is useful to formalize some accounting *performance* indicators. For an asset manager, *ROE* and *ROI* can be expressed in the following terms:

$$ROE = ROI \times \frac{IC}{BV} \times \frac{NP}{EBIT(1-t)} \quad (1)$$

where, $ROI = \frac{AuM}{OLD \times IC} \times m(1-t)$, then the equation (1) also looks as follows:

$$ROE = m(1-t) \times \frac{AuM}{OLD \times BV} \times \frac{NP}{EBIT(1-t)}$$

Table 2. Accounting quantities for the valuation of asset management companies

Variable	*Definition*
AuM	Assets under management
CM	Contribution margin
MF	Active management fees
FP	Fees paid
FC	Fixed costs
EBIT	Earnings before interest and taxes
NOPAT	Net operating profit after tax
NP	Net profit
g	Growth rate of the AuM
t	Tax rate
IC	Invested capital
BV	Book value
OLD	Operating leverage degree
In analytical terms: $CM = MF - FP$; $EBIT = CM - FC$; $NOPAT = EBIT(1-t)$; $OLD = \frac{CM}{EBIT}$; $f = \frac{MF}{AuM}$; $cp = \frac{FP}{AuM}$; $re = \frac{FP}{MF}$; $m = f(1-re)$	

The profitability of the *equity book value* is, therefore, a function of the:

a) the ratio between *AuM* and *BV*, adjusted for the value of the *OLD*;

b) the unit *contribution margin* (net of taxes);

c) the incidence of components not strictly related to the management of the *AuM*.

The model used in this paper[9] is characterized by a few specific features, since it explicitly valuates: a) the *unit contribution margin* (*m*), the *operative leverage degree* (*OLD*) as an important indicator of both the *operational risk*[10] and of the *market risk*; b) the opportunity cost of the (unlevered) invested capital as a function of the Cyclicality Index of Commissions (ICC). After a few simple algebraic steps (Polato, 2022) we obtain equation (2):

$$\frac{EV}{AuM} = \left(\frac{f(1-re)(1-t)}{OLDk_A}\right) * \left(1 + gOLD\frac{(1+k_A)}{(k_A-g)}\right) \quad (2)$$

The value of the *EV/AuM* multiple is made up of two components. The *first*, which identifies the value in the *absence of growth*, depends on:

- The level of *operational risk* (*OLD*), which serves as a multiplier of the opportunity cost of the capital (k_A);
- The commission rate applied (*f*) and the retrocession rate (*re*) as well as the tax rate (*t*).

The *second* component identifies the effect of *growth* (always in the hypothesis of $\psi = 0$) and it depends on:

- The *growth* rate of *EBIT* at the initial moment ($g \times OLD$) and, once the initial *OLD* level is known, the growth rate of the *AuM*, which is a function of the *plan objectives* in terms of net inflows and the *profitability* of the assets and, therefore, (also) of the relevant *benchmark* and more generally of the *management style*.
- The $\frac{(1+k_A)}{(k_A-g)}$ factor, producing a multiplying effect on the basis of the *perpetual growth* hypothesis for the *AuM*.

Starting from equation (2) it is also possible to identify, in additive terms, the value of the multiple (the value without growth, and value growth). From this point of view, we will have equation (3):

$$\frac{EV}{AuM} = \left(\frac{m(1-t)}{OLDk_A}\right) + \left(g\frac{(1+k_A)}{(k_A-g)} \times \frac{m(1-t)}{k_A}\right) \quad (3)$$

Evidently, the value of the multiple in the *absence of growth* is (with the gross margin remaining the same) inversely correlated to *OLD* and k_A. The *value of the growth* unit contribution margin depends on the relative *multiplier* and on the current value of the contribution margin after taxes.

In order to analyze the explanatory power of the variables that define the value drivers in

[9] On the theory and the empirical application of the valuation of asset management firms, see also Bigelli and Manuzzi (2019).

[10] The models by Huberman (2005) and Joenväärä and Scherer (2017), assuming the parameter *q* as a constant, implicitly do not consider fixed costs, and, therefore, the operational risk.

the proposed model, an econometric test was carried out, with reference to an international sample made up of 20 listed asset managers. It emerges from the analysis that the relationship between *EV* and the *AuM*, *unit contribution margin*, return on sales (*ROS*) are positive, as well as statistically significant. The relationship between *EV* and β_U is negative and statistically significant. The relationship between *EV* and *OLD* is not statistically significant[11].

Here, the growth rate of net deposits (φ) is assumed to be known, offering instead a modeling, albeit simplified, of the profitability of the assets achieved by the *manager* (r_G) as a function of the market benchmark.

As known, in recent past, asset managers have suffered a decline in profits due to the exposure of their revenues to the market risk. Management companies, in fact, operate in a *cyclical* context closely linked to the performance of the *financial markets*, which contributes to determining the size and volatility of the assets under management[12]. Scherer (2010, 2012) estimated a *proxy* of the *volatility of management fees* as a function of the volatility of the managed asset[13].

In the context of this paper, in order to take into account the *market risk*, it is possible to hypothesize that the *AuM* evolve, not only in relation to the growth rate of *net deposits* (φ) but also as a function of the *profitability* of the assets achieved by the *manager* (r_G) which, for simplicity's sake, can be represented according to the relevant market benchmark $R \sim N(r_B; \sigma_B^2)$; thus it will be possible to note equation (4):

$$r_G = \alpha_G + \beta_G R + \varepsilon;\ \varepsilon \sim N(0, \sigma_\varepsilon^2) \qquad (4)$$

In such a context, r_G depends upon the *manager's skill*, regardless of the *benchmark* (α_G) and of the *management style* (β_G)[14]. The *growth rate* may be made explicit by noting equation (5):

$$\tilde{g} = \tilde{r_G} + \varphi(1 + \tilde{r_G}) - f[(1 + \tilde{r_G})(1 + \varphi)] \qquad (5)$$

The previous equations (3–4) become *aleatory* and assume an *expected value* and a *volatility* that (given the simplified hypotheses assumed above) depend, *ceteris paribus*, on the expected return and riskiness of the underlying assets[15].

The *market risk* underlying the volatility of the *profitability* of the assets (given the assumptions above) influences the volatility of the multiple, and the expected return of the assets influences the (expected) level of growth of the *AuM*.

From this point of view, it is clear that the value of the asset management companies is not independent (as some previous works seem to claim) from the specific type of the *asset class* they manage, and from the *management style*.

It also appears necessary to study in greater depth the determinants of the (*levered and unlevered*) beta of the management company[16]; the *focus* should obviously be on the *unlevered* beta (β_U), which expresses the systematic risk of the company with regard to the operational risk (Rubinstein, 1973). The in-depth analysis of the impact of the *operational risk* on market *betas* requires a formulation that will bring out the company's *cost structure*[17]. In keeping with Moschetta (2001) and Mandelker and Rhee (1984), it is possible to assume that β_U is affected by the *degree of operating leverage*.

If the *operating income* of the asset management companies is defined as the difference between the *contribution margin* (assuming this is equal to the *net fees*) and *fixed costs*, we can write (Polato, 2022):

$$\beta_U = \frac{cov\left[\frac{MC(1-t)_t - FC(1-t)_+}{EV_{t-1}^U}; r_M\right]}{Var_{RM_t}}$$

After a few basic algebraic elaborations it is easy to verify how the *unlevered* beta can then be expressed in the following terms in equation (6):

$$\beta_U = \beta_L = OLD_{t-1} * ROS_{t-1} * ICC = \frac{m}{f} ICC \qquad (6)$$

where, in relation to the already known symbols, $ICC = \frac{cov\left[\frac{CA}{EV_{t-1}^U}; r_M\right]}{Var_{RM_t}} = \frac{\beta_U}{m}$ represents the *Index of Cyclicity of Fees* measuring the reactivity of fees (in relation to the *EV*) compared to the yield of the market portfolio.

Summing up, the *weighted average cost of capital* (WACC) (coinciding with the opportunity cost of equity) is presented in equation (7):

$$k_A = WACC = r_{RF} + \left(\frac{m}{f} ICC\right)(r_M - r_{RF}) \qquad (7)$$

[11] More precisely, the quarterly data (2006–2020) of a sample of 20 listed management companies belonging to different countries identified through the Bloomberg Intelligence application were collected. The regression model used is the following:

$$EV_{j,t} = \alpha_t + \beta_j + \gamma_0 + \gamma_1 AUM_{j,t} + \gamma_2 m_{j,t} + \gamma_3 ROS_{j,t} + \gamma_4 OLD_{j,t} + \gamma_5 BU_{j,t} + \varepsilon_{j,t}$$

where: $EV_{j,t}$ is the dependent variable (*EV* of the *j*-th company at the *t*-th time); the variables α_t and β_j capture, respectively, the time trends and the asset management company's fixed effects. $AUM_{j,t}$ is a dummy variable assuming a value of 1 for each asset management company when the assets under management go beyond the median value of the sample, and 0 if they don't. The other symbols are known.

[12] More generally, as pointed out by Edelmann (2018) with reference to the global asset management industry "*(…) 70% of the 13% growth recorded in 2017 by AUM in aggregate is attributable to the performance of the stock markets, while the rest comes from net inflows resulting from the increase in global income and pension policy reforms*" (p. 77).

[13] In formal terms, indicating the standard deviation of management fees by $\sigma(ft + 1)$, and the standard deviation of the managed asset by σ:

$$\sigma(f_{t+1}) \approx f * AuM_t * \frac{\sigma}{\sqrt{3}} = \sigma(f_{t+1}) \approx \sigma * \frac{f * AuM_t}{\sqrt{3}}$$

[14] If $\beta = 1$ the management is totally passive; if $\beta = 0$ it is totally active.

[15] In more summary terms, it is possible to represent the dynamics of the *AuM* as a stochastic process in the discrete time (let μ, σ = drift and process volatility; $\varepsilon \sim N(0,1)$). Hence:

$$AuM_{i+\Delta i} = AuM_i + AuM_i \mu \Delta i + AuM_i \sigma \varepsilon \sqrt{\Delta i}$$

The value of the *AuM* and of the contribution margin at the generic moment *i*-th (assuming $\Delta i = 1$) will be, respectively:

$$AuM_i = AuM_0(1 + \mu + \sigma\varepsilon)^i;\ CM_i = mAuM_0(1 + \mu + \sigma\varepsilon)^i$$

In this context, it is evident that: $g = \mu + \sigma\varepsilon$; where μ synthetically identifies the inertial growth rate and factor $\sigma\varepsilon$ the uncertainty component.

[16] The main significant factors in determining systematic risk exposure in Italian asset management companies were analyzed in a previous work (Ferrarin, Floreani, & Polato, 2020). In particular, it was demonstrated that *the level of operational and market risk* are *positively correlated* with the *market betas*. More precisely, with reference to this last aspect, the *beta* of assets under management directly affects commissions.

[17] As is known, Hamada (1972) and Rubinstein (1973) proposed to break down the equity beta with a view to dividing systematic risk exposure into operational risk and financial risk. In formal terms:

$$\beta_L = \beta_U + \beta_U (1 - t) \frac{D}{E}.$$

where, β_L = levered beta; β_U = unlevered beta; t = tax rate; $\frac{D}{E}$ = financial leverage.

4. RESULTS AND DISCUSSION

This section, in order to assess and discuss the impact of *AuM* volatility (from revenues volatility) proposes a simple simulation relating to the dynamics of the *EV* starting from a *DCF asset side* model with standard *terminal value (TV)*[18]. It also proposes an example of the relationship between the synthetic formulation of the *EV/AuM* multiple and the volatility of the *AuM* return and, therefore, the volatility of the benchmark return and management style.

More generally, the objective of the simulations is to highlight (once the parameters are set), the impact on the *EV* of the *operational risk* (summarized by *OLD*) and of the *market risk*, through the use of a basic *stochastic simulation* of the *benchmark ret*urn.

In the absence of market risk, it is assumed that the *AuM* evolve in relation to the autonomous growth rate of *net deposits* (φ) and of the *expected profitability* of the assets achieved by the *manager* (r_G). In such a context, r_G depends on the *manager's skill*, regardless of the *benchmark* (α_G) and from the *management style* (β_G).

In such a context, the trends of the *benchmark return* can easily be represented within the previously mentioned DCF model by means of a simple geometric *Brownian* motion to be used as the basis of Monte Carlo simulations[19]. The previously introduced synthetic formulation of the *EV/AuM* multiple appears useful. Its relative probabilistic dynamics is hereby exemplified (through a Monte Carlo simulation, 1000 iterations).

The simulation parameters are presented in Table 3. A relatively high (0.8) *manager beta* (β_G) is assumed, together with a market benchmark characterized by significant volatility (2%) compared to the expected return (2%). The ICC parameter is assumed to be equal to the 5-year average of the values presented by the two listed Italian asset management companies (Anima and Azimut). The average figure relating to the sample of international asset management companies is equal to 1.

Table 3a. Valuation parameters

Symbols	*Aggregates*	*Values*
AuM	Asset under management	100.00
BEP	Break even point	51.92
m	*CM/AuM*	0.25%
OLD	Operating leverage degree	2.08
f	Management fee	0.58%
re	*FP/MF*	57.06%
cp	*FP/AuM*	0.33%
FC	Fixed cost	0.13
EBIT	Operative income	0.120
t	Tax	30.00%
k_A	WACC	8.32%

Table 3b. Value of the relevant economic variables: *g*, *Beta* and *WACC*

Parameters	*Value*
g	
$\mu r\beta$	2.00%
$\sigma r\beta$	2.00%
Alfa	0.20%
Beta	0.80
φ	1.00%
Beta asset manager	
OLD	2.08
ROS	20.64%
ICC	1.42
Beta	**0.61**
WACC	
Beta Asset Manager	0.61
Market Premium	12.00%
Risk free	1.00%
WACC	**8.32%**

Table 4 highlights the *distribution of the percentiles* of the *EV/AuM* multiple, the relative make up, distinguishing between *value without growth* and *value of growth* (from the return on assets in the hypothesis of zero net inflows and, by difference, from net inflows).

Table 4a. *EV/AuM*: Percentile distribution

Percentile	*Value*
15%	1.16%
20%	1.26%
25%	1.36%
30%	1.44%
35%	1.55%
40%	1.64%
45%	1.74%
50%	1.84%
55%	1.94%
60%	2.05%
65%	2.17%
70%	2.31%
75%	2.48%
80%	2.68%
85%	2.97%

Table 4b. *EV/AuM*: Growth and no nrowth components

EV/AuM	*Median values*
No growth value	**1.01%**
Growth value (from *r*)	0.39%
Growth value (from φ)	0.44%
Growth value	**0.83%**
EV/AuM	**1.84%**

For a useful comparison, the multiples relating to the sample of listed international asset managers are shown.

[18] Alongside *synthetic procedures*, in practice the so-called *analytical procedures* with *TV* are often employed. They provide for an analytical estimate of cash flows for a first period and, subsequently, the calculation of a *final value*:

$$EV_0 = \sum_{t=1}^{n} \frac{FCFF_t}{(1+WACC)^t} + \frac{TV}{(1+WACC)^n} \text{ con: } TV = \frac{FCFF_{n+1}}{WACC_{n+1} - g}$$

[19] In formal terms, assuming a discrete stochastic process, the dynamics of the *benchmark return* (r_B) can be expressed, or, as a first approximation, in the following terms:

$$r_{B\,(t+\Delta t)} = r_{B\,(t)} + r_{B\,(t)}\mu\Delta t + r_{B\,(t)}\sigma\varepsilon\sqrt{\Delta t}$$

with μ = drift; σ = volatility; ε = normal with mean 0 and standard deviation 1. For the relevant purposes here, the *simulation engine* obviously has no particular importance. The purpose, in fact, is simply to highlight the informational potential of a probabilistic representation. In a more *realistic* context, starting from the specific *plan assumptions*, it is naturally possible to model in a more accurate and *firm-specific* way the dynamics of the main drivers of the *operating cash flow* and, therefore, of value.

Table 5. Sample multiples of international listed asset managers

Median values	*2011*	*2012*	*2013*	*2014*	*2015*	*2016*	*2017*	*2018*	*2019*	*2020*	*Average*
EV/EBIT	10.65	11.38	13.19	12.88	11.07	11.55	11.97	10.77	11.34	10.66	**11.55**
EV/AuM	2.63%	2.79%	3.36%	2.83%	2.30%	2.21%	2,.15%	1.54%	1.62%	1.30%	**2.27%**

Table 6 highlights the valuation model parameters allowing us to determine the *EV/AuM* multiple in the *absence of growth* and, therefore, (by difference), the *growth value*.

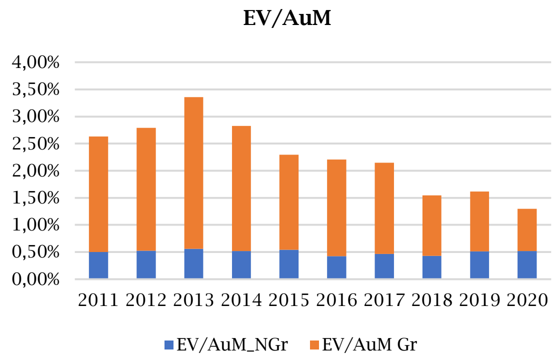
Table 6. Values of the multiple (with and without growth) — Sample of international listed asset managers

	2011	*2012*	*2013*	*2014*	*2015*	*2016*	*2017*	*2018*	*2019*	*2020*	*Average*
m	0.27%	0.28%	0.29%	0.26%	0.25%	0.23%	0.24%	0.21%	0.21%	0.24%	**0.25%**
OLD	3.25	3.32	3.26	3.21	3.18	3.68	3.43	3.48	3.62	3.56	**3.40**
k_A	11.67%	11.45%	11.11%	10.94%	10.20%	10.49%	10.49%	9.86%	8.07%	9.08%	**10.34%**
EV/AuM (NG)	0.50%	0.52%	0.56%	0.52%	0.54%	0.42%	0.47%	0.43%	0.51%	0.52%	**0.50%**
EV/AuM (G)	2.13%	2.27%	2.79%	2.31%	1.75%	1.78%	1.68%	1.11%	1.10%	0.78%	**1.77%**
EV/AuM (T)	**2.63%**	**2.79%**	**3.36%**	**2.83%**	**2.30%**	**2.21%**	**2.15%**	**1.54%**	**1.62%**	**1.30%**	**2.27%**

Note: NG = no growth, G = growth, T = total.

It is easy to verify (Figure 1) the fundamental stability over time of the value of the multiple in the *absence of growth*, also due to the compensation of the effects deriving from the reduction of k_A and the simultaneous increase (reduction) of *OLD* (*m*). The latter, however, gradually acquires a greater impact, considering (*ceteris paribus*) the gradual reduction in the *growth value*.

Figure 1. Evolution and determinants of the *EV/AuM* multiple



The model and the related simulation highlight how *market risk* can affect the *growth rate* of the *AuM*, and, therefore, the creation of value.

By observing a sample of listed international asset managers, it is easy to detect a substantial stability of the value of the multiple in the *absence of growth*, which, however, develops a greater impact over time, considering (*ceteris paribus*) the progressive reduction in the *growth value*.

The previous analysis underlies some significant implications.

The most important is that it becomes clear that the degree of value creation depends on the specific asset class the firm is involved with. Given the asset class, the value depends on the management style, also.

It is also essential for asset managers to promote the containment of *fixed costs* and to defend *contribution margins*, in a context in which there are strong pressures on profitability. In a scenario characterized by the prospective significant reduction of the *total expense ratio*, the asset managers have also to find a clear business model within a market that appears increasingly polarized (on the one hand the so-called *passive* world and, on the other, the *alternative* world).

5. CONCLUSION

Although the asset management firms are not directly subject to the market (and credit) their revenues are exposed to the *market risk* and not only to the *operational risk* as had been thought of as the main risk factor. Management companies, in fact, operate in a *cyclical* context closely linked to the performance of the *financial markets*, which contributes to determining the size and volatility of the assets under management.

It has been highlighted that the empirical literature on the valuation of asset management firms is relatively scant. In particular, a literature gap seems to be found in the analysis of the impact of market risk on enterprise value (and equity value). In order to try to fill the gap the paper proposed an example of the relationship between the (synthetic formulation of the) *EV/AuM* multiple and the volatility of the *AuM* return and, therefore, the volatility of the benchmark return and management style.

In this theoretical framework, the key point is that the enterprise value depends on the specific asset class the firm is involved with. Given the asset class, the enterprise value depends on the management style also.

The paper, building upon the contributions by Huberman (2005) and Joenväärä and Scherer (2017), proposes a model for determining the enterprise value of the asset managers that explicitly values the *contribution margin* and the degree of risk (both *operational and market risks*).

The model highlights how *market risk* can affect (even significantly) the *growth rate* of the *AuM*, and, therefore, the creation of value. It has already been demonstrated that *market risk* (and *operational risk*) increases the *systematic risk* of the management companies (Ferrarin et al., 2020) and, therefore, reduces the Enterprise value.

By observing a sample of listed international asset managers (in the period 2011–2020) it is easy to detect a substantial stability of the value of the multiple in the *absence of growth*, which, however, develops a greater impact over time, considering (*ceteris paribus*) the progressive reduction in the *growth value*.

This portrayal underlies some significant managerial implications.

1.Hedging the *market* risk, implicit in the mechanism for determining commission income, emerges as advisable conduct for the managers; this profile has traditionally been considered of little relevance in the economy of asset management companies.

2.The degree of value creation depends on the specific asset class the firm is involved with. Given the asset class, the value depends on the management style, also.

3.It is also essential for managers to promote the containment of *fixed costs* and to defend *contribution margins*, in a context in which there are strong pressures on profitability. Not coincidentally, in the global asset management industry, M&A operations have gradually intensified.

4.It is also easy to figure out how partnerships and mergers can be usefully improved, not only between management companies but also *as cross-industry* solutions (for example, with the acquisition of software houses for the front office in order to take advantage of platforms that are perfectly aligned with products and distribution models in order to improve the customer experience). Moreover, the pervasive *digitalization of processes* pushes asset managers towards organizational and functional configurations that are typical of data companies, for which size can become a less relevant competitive factor.

5.In a scenario characterized by the prospective significant reduction of the *total expense ratio*, the asset management market appears increasingly polarized; on the one hand, the so-called *passive* world and, on the other, the *alternative* world.

6.*Passive* and ETF-based *products* have lower costs for the end customer. Alternative asset classes are attractive both for management houses who appreciate their high margins and for investors who benefit from attractive returns. Moreover, it is worth noting the spreading of fees that are increasingly linked to performance and the growing offer of innovative products such as, for example, active transparent and non-transparent exchange-traded funds (ETFs) and *smart betas*.

In conclusion, the main result is that it seems clear, from a theoretical point of view, that the value of the asset management companies is not independent, as some previous works seem to claim, from the specific type of the *asset class* they manage, and from the *management style*.

Future research can overcome some limitations of this study and provide more empirical evidence supporting the main conclusion. In particular, more econometric work is needed to check, making use of a sample of asset managers on a global basis and over a long run period, for patterns in valuation multiples, and for possible empirical links with macroeconomic variables and with different asset classes and management styles.

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