M2 Stratégie et Ingénierie Financière (SIF)
M2 Banque Finance

Capital Risque, Cours n°3

Question sur les cours 1 et 2. Questions sur l'étude France Invest 2017. La structure des fonds, les frais et la mesure du rendement ; exercice d'application tiré du CFA Level II.

Les risque du private equity. Exercices d'application tirés du CFA Level III.

Questions sur le 2ème cours

- Qu’est ce que l’effet de levier ?
- Qu’est ce qu’une dette mezzanine ? A quoi sert t’elle ?
- Quelle sont les caractéristiques d’une entreprise cible ?
- Quelles sont les 3 principales méthodes utilisées pour la valorisation d’une entreprise ?
- Qu’est ce qu’un *limited partnership* ?
- Qu’est ce qu’un *general partner* ?

CFA Institute

CFA Level II

- Le niveau 2 est beaucoup plus conséquent, le programme est clairement plus vaste, on vous demande de comprendre : le vocabulaire technique, les détails de la technique de LBO et les calculs de performance et de frais des fonds de PE.
- Au niveau calcul, ca n'a pas changé, cela reste du multiple, de la probabilité de base, et de l'actualisation de base. Par contre le niveau de compréhension pour poser les bons calculs est plus élevé.

Exhibit 1 Classification of Private Equity in Terms of Stage and Type of Financing of Portfolio Companies

Broad Category	Subcategory	Brief Description
Venture capital	Seed stage	Financing provided to research business ideas, develop prototype products, or conduct market research.
	Start-up stage	Financing to recently created companies with well articulated business and marketing plans.
	Expansion stage	Financing to companies that have started their selling effort and may be already breaking even. Financing may serve to expand production capacity, product development, or provide working capital.
	Replacement capital	Financing provided to purchase shares from other existing venture capital investors or to reduce financial leverage.
Buyout	Acquisition capital	Financing in the form of debt, equity, or quasi-equity provided to a company to acquire another company.
	Leverage buyout	Financing provided by a LBO firm to acquire a company.
	Management buyout	Financing provided to the management to acquire a company, specific product line, or division (carve-out).
Special situations	Mezzanine finance	Financing generally provided in the form of subordinated debt and an equity kicker (warrants, equity, etc.) frequently in the context of LBO transactions.
	Distressed securities	Financing of companies in need of restructuring or facing financial distress.
	One-time opportunities	Financing in relation to changing industry trends and new government regulations.
	Others	Other forms of private equity financing are also possible (i.e., activist investing, etc.).

Source: www.evca.com.

Source : CFA Program Curriculum Level II 2014 volume 5 page 141

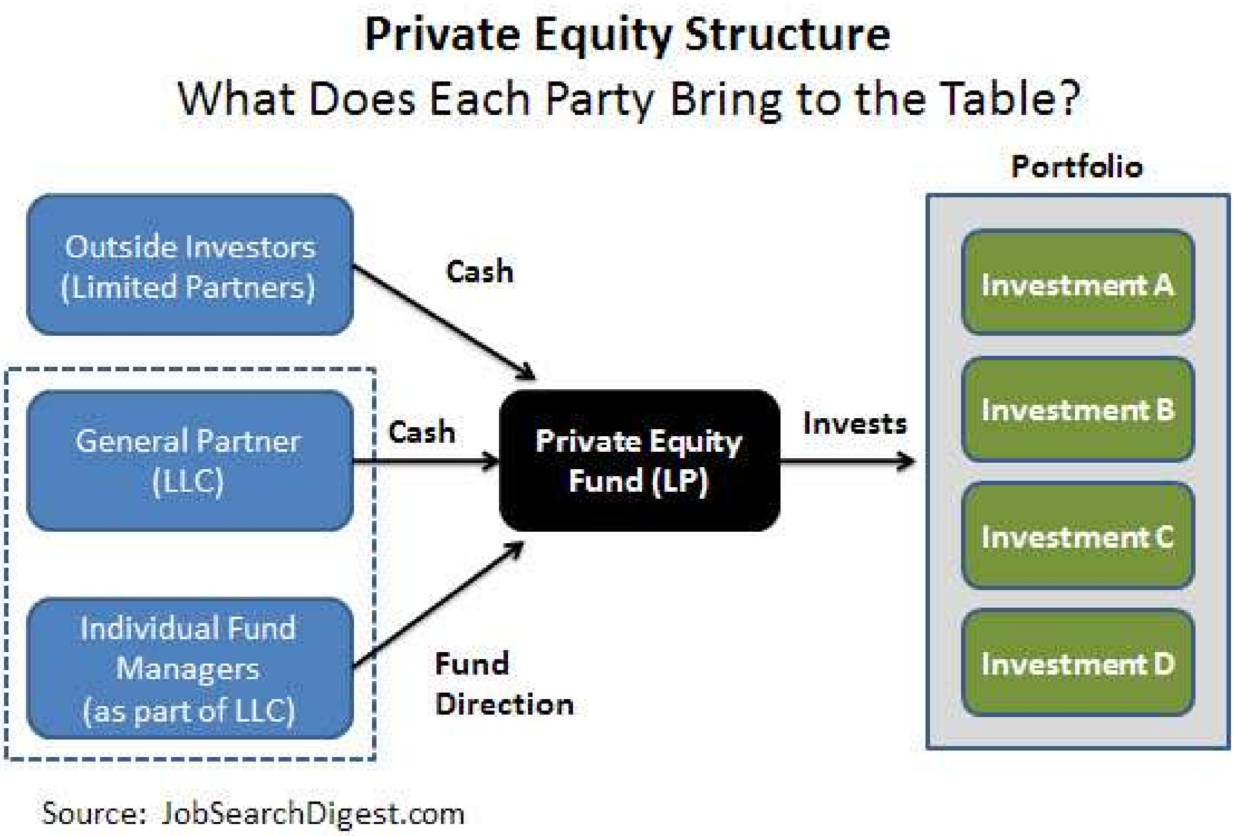
La valorisation des actions dans les transactions de capital investissement avec augmentation de capital

- Valorisation *pre money* (avant l'investissement) = valeur de l'entreprise sur laquelle les actionnaires cédants et les investisseurs entrant dans le capital se mettent d'accord avant de procéder à la transaction.
- Valorisation *post money* (après l'investissement) = valeur de l'entreprise basée sur la transaction qui vient d'avoir lieu.
- I = l'investissement des nouveaux actionnaires
- Post = Pré + I
- La part du capital de l'actionnaire entrant étant de I / Post
- La part du capital (en %) de l'actionnaire pré existant après l'augmentation de capital est de Pré / (Pré+I) ou bien pré / Post

La valorisation des actions dans les transactions de capital investissement : Exemple

- Un fonds de capital risque investi 1 M€ dans une entreprise sur la base d'une valorisation *pre money* de 1,5 M€.
- Quelle sera sa part dans l'actionnariat ?

La structure des fonds de capital investissement

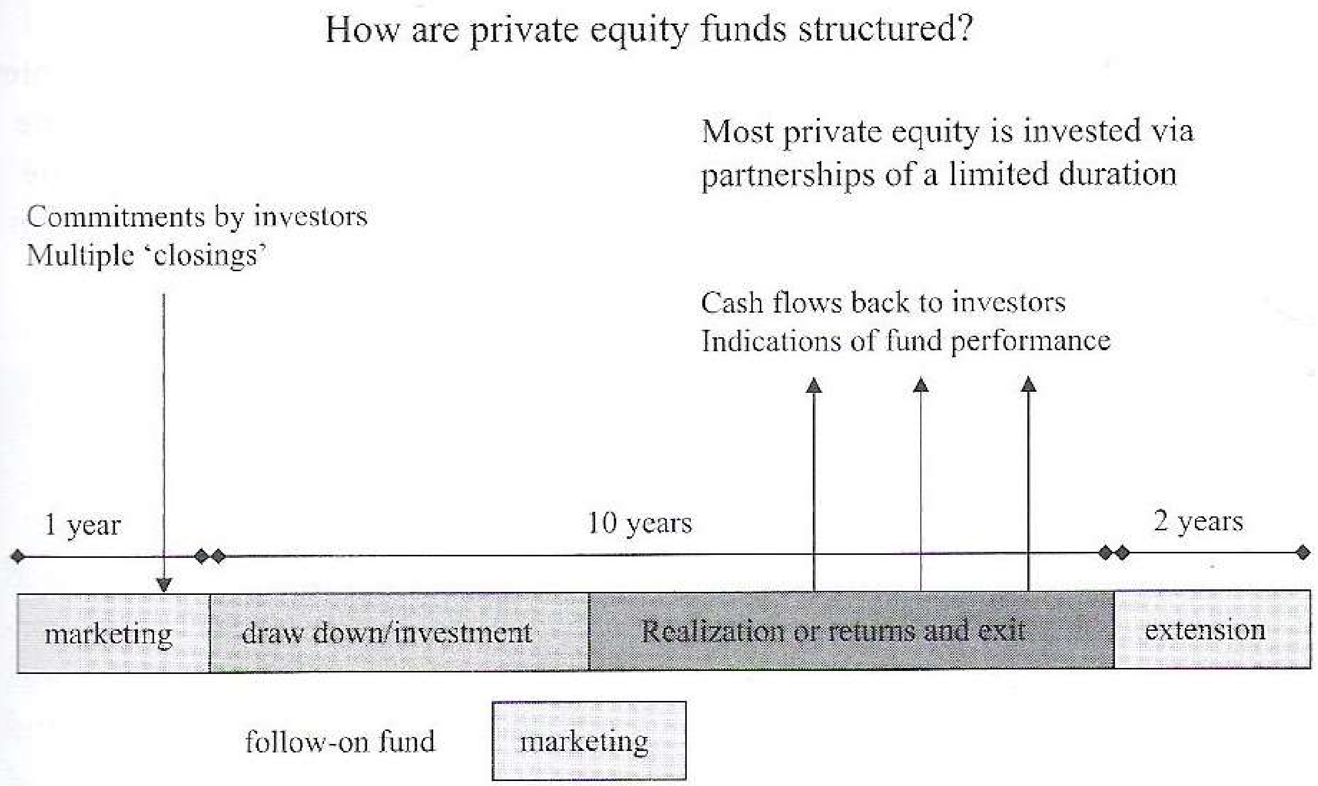


Source : https://www.jobsearchdigest.com/private-equity-jobs/career-advice/carried-interest-guide/

La structure des fonds de capital investissement

- Des fonds *closed end* : pas de possibilité pour l'investisseur de sortir avant l'échéance prévue, des possibilités pour d'autres investisseurs d'entrer en cours de route. Une durée prévue de 10 à 12 ans, généralement extensible de 2 à 3 ans.
- Le marketing d'un fonds dure de 1 à 2 ans, une fois que les investisseurs sont engagés à investir (*commited capital*), le fonds démarre et la capital est appelé au fur et à mesure des investissements réalisés.

Exhibit 6 **Funding Stages for a Private Equity Fund**



Source : CFA Program Curriculum Level II 2014 volume 5 page 157

Terme économiques

- *Management fees* represent a percentage of committed capital paid annually to the GP during the lifetime of the fund. Fees in the region of 1.5 percent to 2.5 percent are fairly common. Although less frequent, management fees may also be calculated on the basis of the net asset value or on invested capital.
- *Transaction fees* are fees paid to GPs in their advisory capacity when they provide investment banking services for a transaction (mergers and acquisitions, IPOs) benefiting the fund. These fees may be subject to sharing agreements with LPs, typically according to a 50/50 split between the GP and LPs. When such fee-sharing agreements apply, they generally come as a deduction to the management fees.
- *Carried interest* represents the general partner's share of profits generated by a private equity fund. Carried interest is frequently in the region of 20 percent of the fund's profits (after management fees).
- *Ratchet* is a mechanism that determines the allocation of equity between shareholders and the management team of the private equity controlled company. A ratchet enables the management team to increase its equity allocation depending on the company's actual performance and the return achieved by the private equity firm.
- *Hurdle rate* is the internal rate of return that a private equity fund must achieve before the GP receives any carried interest. The hurdle rate is typically in the range of 7 percent to 10 percent. The objective is to align the interests of the GP with those of LPs by giving additional incentives to the GP to outperform traditional investment benchmarks.

EXAMPLE 2

Calculation of Carried Interest

Suppose that a LBO fund has committed capital of US$100 million, carried interest of 20 percent, and a hurdle rate of 8 percent. The fund called 75 percent of its commitments from investors at the beginning of year 1, which was invested at the beginning of year 1 in target company A for $40 million and target company B for $35 million. Suppose that at the end of year 2, a profit of $5 million has been realized by the GP upon exit of the investment in company A, and the value of the investment in company B has remained unchanged. Suppose also that the GP is entitled to carried interest on a deal-by-deal basis, i.e., the IRR used to calculate carried interest is calculated for each investment upon exit. A theoretical carried interest of $1 million (20 percent of $5 million) could be granted to the GP, but the IRR upon exit of investment in company A is only 6.1 percent. Until the IRR exceeds the hurdle rate, no carried interest may be paid to the GP.

Source : CFA Program Curriculum Level II 2014 volume 5 page 159

Termes de gouvernance

- *distribution waterfall* : méthode par laquelle le capital gagné par le fonds est réparti entre les investisseurs (LPs) et le gérant (GP).
- *tag along drag along* : clause de sortie conjointe permet aux associés d’une société de se joindre à un associé sortant pour vendre tout ou partie de leur participation en même temps et aux mêmes conditions, notamment de prix, que ceux prévues pour la vente, par l'associé sortant, de sa propre participation.
- *no-fault divorce* : révocation du GP sans cause (sans violation du contrat qui régit le fonctionnement du fonds) si une super majorité (généralement plus de 75%) des LPs le décide.

Mesure de la performance

- PIC (*Paid In Capital*) : capital appelé / capital souscrit (*comitted*)
- DPI (*Distributed to Paid In*) : distributions cumulées / capital appelé, aussi appelé *cash on cash return*.
- RVPI (*Residual Value to Paid In*) : *NAV* / capital appelé.
- TVPI (*Total Value to Paid In*) : résultats distribués et non distribué / capital appelé, est logiquement égal à DPI + RVPI.

Tous sont net de *fees* et de *carried interest*

Nota Bene : l'étude de France Invest respecte ces standards.

Frais de gestion et mesure de la performance : exemple

CFA Program Curriculum Level II 2014 volume 5 page 168 commited capital : 125 M ; management fees 2% ; carried interest 20%						
	2001	2002	2003	2004	2005	2006
Called down	50	15	10	25	10	5
Realized results	0	0	10	35	40	80
Unrealized results	-5	-15	15	10	15	25
Distribution	0	0	0	25	45	75

CFA Program Curriculum Level II 2014 volume 5 page 168
commited capital : 125 M ; management fees 2% ; carried interest 20% si la NAV dépasse le commited

Année	Called down / capital appelé en cours d'année	Paid in Capital / total capital appelé	Management fees / frais de gestion	Operating Result / Résultat Opérationnel	NAV before distribution / Valeur d'actif net avant distribution	carried interest	Distributions	NAV after distribution / Valeur d'actif net après distribution
2001								
2002								
2003								
2004								
2005								
2006								

En année 2006, calculez le DPI, le RVPI & le TVPI.

Les frais de gestion (managment fees peuvent être en % du commited ou en % du Paid In). Pour cette exercice, faites en % du Paid in

Frais de gestion et mesure de la performance : exemple

CFA Program Curriculum Level II 2014 volume 5 page 168

commited capital : 125 M ; management fees 2% ; carried interest 20% si la NAV dépasse le commited

Année	Called down / capital appelé en cours d'année	Paid in Capital / total capital appelé	Management fees / frais de gestion	Operating Result / Résultat Opérationnel	NAV before distribution / Valeur d'actif net avant distribution	carried interest	Distributions	NAV after distribution / Valeur d'actif net après distribution
2001	50	50	-1,0	-5	44,00		0	44,00
2002	15	65	-1,3	-15	42,70		0	42,70
2003	10	75	-1,5	25	76,20		0	76,20
2004	25	100	-2,0	45	144,20	3,84	25	115,36
2005	10	110	-2,2	55	178,16	6,79	45	126,37
2006	5	115	-2,3	105	234,07	11,18	75	147,89

DPI (Distributed to Paid In)	1,26
RVPI (Residual Value to Paid In	1,29
TVPI (Total Value to Paid In)	2,55

CFA Institute

CFA Level III

- Au niveau 3, l'approche se focalise sur le point de vu de l'investisseur, le chapitre sur le Private Equity est logé dans un chapitre intitulé Alternative Investments Portfolio Management. Le contenu est moins vaste, il s'agit d'une description général des fonds de VC et de buy out, et de leur intérêt dans une allocation d'actifs.
- Le candidat doit avoir une compréhension général du marché du Private Equity.
- Au niveau calcul, il n'y a presque rien.

Culture générale

- Qu'est ce qu'un investissement alternatif ?
- Quelles sont les autres investissements alternatifs ?

Culture générale

- Tout investissement dans quelque chose d'autre que de la valeur mobilière classique est un investissement **alternatif (catégorie AMF : FIA)**.
- Les investissements alternatifs principaux sont : le Private Equity, l'immobilier, les matières premières (commodities), les Hedge Funds (appelé à tord fonds spéculatifs), le Managed Futures, et le Distress Securities.
- Autres investissements alternatifs : forêts, infrastructures, cinéma…

Quelles différences entre investissements cotés et non cotés ?

- Au niveau de la négociation des transactions ?
- Au niveau de l'accès à l'information ?
- Au niveau de l'implication de l'investisseur post transaction ?

Quelles différences entre investissements cotés et non cotés ?

Exhibit 8 Investment Processes of (Direct) Private Equity Investment and Investment in Publicly Traded Equities

Private Equity Investments	Publicly Traded Securities
Structure and Valuation	
Deal structure and price are negotiated between the investor and company management.	Price is set in the context of the market. Deal structure is standardized. Variations typically require approval from securities regulators.
Access to Information for Investment Selection	
Investor can request access to all information, including internal projections.	Analysts can use only publicly available information to assess investment potential.
Post-Investment Activity	
Investors typically remain heavily involved in the company after the transaction by participating at the board level and through regular contact with management.	Investors typically do not sit on corporate boards or make ongoing assessments based on publicly available information and have limited access to management.

Source: Prepared by Andrew Abouchar, CFA, of Tech Capital Partners.

The following section discusses some prominent characteristics of the priv
equity marketplace and private equity funds.

Source : CFA Program Curriculum level III 2016 volume 5 page 28

La demande en *Venture Capital* / Capital Innovation

- De quelles entreprises provient la demande en capital innovation ?
- Quelles sont les 3 phases de financement d'une entreprise nouvellement crée ?
- Quels sont les possibilités de sorties pour les investisseurs ?

La demande en *Venture Capital* / Capital Innovation

- La demande provient : d'entreprises en cours de création (*formative stage companies*) dans un marché ayant un fort potentiel de croissance (on parle de 10 à 50M€ de revenus à échéance de 5 ans ; ainsi que d'entreprise en phase d'expansion (*expansion stage companies*), qui ont besoin de financer la croissance des ventes.

3 phases de financement d'une entreprise nouvellement crée

En *early stage financing*, nous avons :

- Le capital amorçage (*seed capital*) : une somme encore relativement faible qui permet aux entrepreneurs de créer l'entreprise et de prouver que l'entreprise à des chances raisonnables de succès.
- Le démarrage (*start up*) : l'entreprise est créée, l'idée semble viable, l'entreprise a besoin d'argent pour démarrer la commercialisation (il n'y a pas encore de revenus à ce moment).
- Le *first stage* : les financements précédents sont épuisés, l'entreprise doit avoir progressée pour attirer de nouveaux investissement.

La sortie de l'investisseurs

- Tant qu'on n'a pas revendu, on n'a pas gagné.
- Sortir d'un investissement non coté peut être difficile (concept de **liquidité**), l'investisseur peut réaliser son gain de plusieurs manières :

  1) Une fusion avec une autre entreprise

  2) L'acquisition par une autre entreprise ou un autre fonds d'investissement

  3) Une introduction en bourse (IPO)
- En cas d'échec de l'entreprise, la sortie se fera par liquidation.

Exhibit 9 Venture Capital Timeline

	Formative-Stage Companies			Expansion-Stage Companies		
	Early Stage			Later Stage		Pre-IPO
	Seed	Start-Up	First Stage	Second Stage	Third Stage	Mezzanine
Stage characteristics	Idea incorporation, first personnel hired, prototype development	Moving into operation, initial revenues		Revenue growth		Preparation for IPO
Stage financing (buyers of private equity)	Founders, FF&F,[a] angels, venture capital	Angels, venture capital		Venture capital, strategic partners		
Purpose of financing	Supports market research and establishment of business	**Start-up financing** supports product development and initial marketing **First-stage financing** supports such activities as initial manufacturing and sales		**Second-stage financing** supports the initial expansion of a company already producing and selling a product **Third-stage financing** provides capital for major expansion **Mezzanine** (bridge) **financing** provides capital to prepare for the IPO—often a mix of debt and equity		

[a] FF&F = founder's friends and family. The sources of financing are listed in typical order of importance. "love money"

Source : CFA Program Curriculum Level III 2016 volume 5 page 30 & 31

The IPO of Google

- The IPO of Google, Inc., illustrates the timeline for private equity. Google was incorporated in 1998 with an initial investment of US$1,000,000 by family, friends, and angel investors.
- In early 1999, Google received US$25 million in venture capital funds. The two venture capital firms that provided capital in 1999 each own about 10.2 percent of the company.
- In April 2004, Google filed for an IPO. The IPO date was 19 August 2004, with Morgan Stanley and Credit Suisse First Boston as the lead underwriters in an unusual (for equities) Dutch auction–style auction, which affords more access to shares by smaller investors.
- The offering was for approximately 19.6 million shares of Class A common stock. Of that number, approximately 4.5 million shares were from selling shareholders realizing part of the cash value of their shareholdings, including company founders Larry Page and Sergey Brin.
- The offering was at US$85 per share and raised about US$1.2 billion for Google and US$464 million for the selling shareholders. After the offering, about 33.6 million Class A shares and about 237.6 million privately held Class B shares were outstanding. The Class B shares, held by the founders and other executives and investors, had 10 votes per share (versus 1 vote per share for the Class A shareholders). This dual-stock structure was viewed as unusual in technology IPOs, but it had been used by media companies, such as the *New York Times.* It permitted insiders to maintain voting control over Google and, according to Google executives, protected the company from pressures felt by public companies to produce short-term performance. At the same time, the Class B shares were convertible to the registered Class A shares, so the investing group could access public markets to realize the cash values of their holdings in the future. The August 2004 IPO was oversubscribed, and the shares (NASDAQ: GOOG) rose about 18 percent in initial trading. On 14 September 2005, Google made a follow-on offering of about 14.2 million shares at US$295 per share that raised US$4.18 billion. On 31 March 2006, Google was added to the S&P 500.

Sources: Reuters, "Key Dates in the History of Google" and "Update: Brin, Page Lead List of Google Shareholders," both on 29 April 2004 at www.google-ipo.com.

Les rendements historiques

Exhibit 12 US Private Equity Returns as of 30 September 2005 (in Percent)

millésime 2000 !

Period	Venture Capital Funds				Buyout Funds	NASDAQ	S&P 500
	Seed/Early	Balanced	Late Stage	All			
3 Year	0.4	9.3	6.1	4.9	14.7	22.4	14.7
5 Year	–13.2	–5.6	–7.7	–9.3	3.1	–10.1	–3.1
10 Year	46.8	20.8	13.0	26.5	8.7	7.5	7.7
20 Year	20.2	14.6	13.7	16.5	13.3	12.3	11.2

Source: NVCA and Thomson Venture Economics, 4 February 2004, news release, www.nvca.org.

- Remarquez que le **millésime** (***vintage***) compte beaucoup ! Il ne fallait pas investir en 2000, au sommet de la bulle internet !!
- On remarque que les investissements les plus risqués sont aussi ceux qui rapporte le plus, ce qui est logique. Les chiffres de France Invest paraissent d'autant plus étrange…

Les caractéristiques d'un investissement en PE

- Illiquidité
- Engagement à long terme
- Risque plus élevé que les actions cotés, dispersion plus importante. Peut être comparable aux micro cap.
- TRI élevé attendu par les investisseurs.

Les effets de l'illiquidité

- La décote de participation minoritaire (*minority interest discount*) reflète le fait que l'investisseur n'a pas de contrôle sur l'entreprise et les distributions de cash. Cette décote est en général de 20 à 30%.
- La décote d'illiquidité (*lack of marketability discount*) dépend de plusieurs facteurs, comme la taille de la participation et le niveau des dividendes, cette décote peut être de 28 à 36% (COCHRANE, 2004).

EXAMPLE 7

A Nonmarketable Minority Interest

Brent Smith has determined that his company will make a small investment in a private company, Clark Computing. The investment will be a nonmarketable minority interest. Smith's investment banker estimates that the value of Clark equity, if it were publicly traded, would be £500 million. Smith's company's interest in Clark will be 10 percent of Clark's equity. Smith's investment banker determines that a minority interest discount of 20 percent and a marketability discount of 25 percent are appropriate. What is the value of the nonmarketable minority interest?

Solution:

The money amounts shown are in millions of pounds sterling.

Marketable controlling interest value: (10% × 500) = 50.

Minority interest discount: (20% × 50) = −10.

Marketable minority interest: (50 − 10) = 40.

Marketability discount: (25% × 40) = −10.

Nonmarketable minority interest: (40 − 10) = 30.

Smith's investment banker values the investment at £30 million.

on additionne pas les ~~facteur~~ prime de discount, on facteur les discount.

$(1-0,2-0,25) > (1-0.2)(1-0.25)$

0.55 = 0.45 de discount

0.6 = 0.4 de discount

VC funds and buyout funds have some expected differences in return

Source : CFA Program Curriculum Level III 2016 volume 5 page 39

Rôle dans le portefeuille

- Diversification : ce n'est pas la motivation première, car il y a bien une corrélation avec les marchés actions.
- Améliorer les rendements à long terme est bien la motivation principale.
- Compte tenu de l'illiquidité, les allocations sont en général de 5% dans les portefeuilles institutionnels.
- Il faut donc avoir un portefeuille total très important. La mise de fonds minimum est généralement de 5M€, pour diversifier il faut avoir 5 à 10 investissements différent (donc 25 à 50M€) et donc des actifs totaux de 500M€ à 1 000M€. Sinon il faut passer par un fonds de fonds, et payer une couche supplémentaire de frais.

Exercice Niveau III CFA

The next topic Wanja discusses is private equity investments. She lists the attributes of private equity and the possible benefits of adding private equity to a pension fund as follows:

1. Private equity has low correlations with public equity, so it can greatly contribute to a portfolio's ability to diversify risks.
2. The asset class's low liquidity generally implies a smaller allocation.
3. Small pension funds should invest in a fund-of-funds structure to help increase diversification without increasing expenses.

She tells the audience that private equity management fees are often based on a percentage of the value of the limited partners' committed funds and tend to stay the same throughout the life of the investment. In addition, managers typically receive carried interest of about 20%, which is paid before any limited partner distribution. But limited partners sometimes require a claw back provision that mandates if they do not achieve the preferred return over the full life of the investment, the manager is required to forfeit carried interest previously earned.

21. When discussing the possible benefits of adding private equity to a pension fund, Wanja is *most likely* correct regarding the:

    A. relationship between liquidity and size of the exposure.
    B. use of a fund-of-funds structure.
    C. ability to diversify portfolio risks.

22. Wanja's explanation of a private equity fund manager's fees is *least likely* correct with regards to:

    A. claw-back provisions.
    B. carried interest.
    C. management fees.

Source : CFA Level III Mock Exam ; Afternoon Session ; 2016

21. When discussing the possible benefits of adding private equity to a pension fund, Wanja is *most likely* correct regarding the:

A. relationship between liquidity and size of the exposure.
B. use of a fund-of-funds structure.
C. ability to diversify portfolio risks.

Answer = A

Private equity investments, both direct and through private equity funds are highly illiquid. Capital is typically restricted from exiting the fund for 7–10 years. As a result, private equity allocations are typically 5% or less.

CFA Level III
"Alternative Investments Portfolio Management," Jot K. Yau, Thomas Schneeweis, Thomas R. Robinson, and Lisa R. Weiss
Section 4.3.2

Exercice Niveau III CFA : corrigé

22. Wanja's explanation of a private equity fund manager's fees is *least likely* correct with regards to:

A. claw-back provisions.
B. carried interest.
C. management fees.

Answer = C

Although management fees are typically based on the percentage of the value of limited partners' committed funds, management fees often scale down in the later years of a partnership to reflect a lower workload as the fund becomes fully invested. Consequently, the manager is not actively involved in identifying potential investment companies.

CFA Level III
"Alternative Investments Portfolio Management," Jot K. Yau, Thomas Schneeweis, Thomas R. Robinson, and Lisa R. Weiss

Private Equity

Orion values the private equity fund on an annual basis and presents the following multiples: 1) total value to since-inception paid-in capital, 2) since inception distributions to since-inception paid-in capital, 3) since-inception paid-in capital to cumulative committed capital, and 4) residual value to since-inception paid-in capital. Orion aggregates its various strategies in its composites. The composites are separated by vintage year.

Lee advises Orion's pricing and valuation committee to use the hierarchy of valuation methodologies presented in Exhibit 1 to establish fair values for its investments in private equity.

Exhibit 1
Hierarchy of Private Equity Valuation Methodologies

Methodology	Order	Description
1	Best	Present value of risk adjusted cash flows
2	Next-Best	Market transactions
3	Least Preferred	Market-based multiples

57. Orion's private equity disclosure *least likely* meets GIPS standards with respect to the:

A. use of multiples.
B. timing of valuations.
C. construction of composites.

58. Does Lee's proposed hierarchy of private equity valuation methodologies in Exhibit 1 *most likely* meet GIPS standards?

A. Yes.
B. No, the correct order of methodologies is 2, 3, 1.
C. No, the correct order of methodologies is 3, 2, 1.

Source : CFA Level III Mock Exam ; Afternoon Session ; 2011

57. Orion's private equity disclosure *least likely* meets GIPS standards with respect to the:

A. use of multiples.
B. timing of valuations.
C. construction of composites.

Answer = C

"Global Investment Performance Standards," Phillip Lawton, CFA, CIPM and W. Bruce Remmington, CFA
2011 Modular Level III, Vol. 6, pp. 329-332
Study Session 18-48-q

Explain the provisions of the GIPS standards for private equity.

C is correct. GIPS standards require the separation of composites by strategy as well as vintage year.

58. Does Lee's proposed hierarchy of private equity valuation methodologies in Exhibit 1 *most likely* meet GIPS standards?

A. Yes.
B. No, the correct order of methodologies is 2, 3, 1.
C. No, the correct order of methodologies is 3, 2, 1.

Answer = B

"Global Investment Performance Standards," Phillip Lawton, CFA, CIPM and W. Bruce Remmington, CFA
2011 Modular Level III, Vol. 6, pp. 334-335
Study Session 18-48-r
Explain the GIPS Valuation Principles including the valuation hierarchy.

B is correct. According to GIPS standards, the correct order of valuation methodologies is:
1) Objective, observable quoted market prices for similar investments in active markets. (#2)
2) Quoted prices for identical or similar investments in markets that are not active. (#2)
3) Market-based inputs other than quoted prices that are observable for the investment. (#3)
4) Subjective, unobservable inputs. (#1)

Exercice Niveau III CFA : corrigé

Source : CFA Level III Mock Exam ; Afternoon Session ; 2011

Les performances

Fonds	Montant investi	année 0	année 1	année 2	année 3	année 4	année 5	année 6	année 7
A	100	-100	0	0	0	0	0	0	300
B	100	-100	0	150	0	0	0	0	0

- Quel fonds a la meilleurs performance ?
- Dans lequel auriez vous préféré investir ?
- Calculez le TRI ; calculer le Multiple (TVPI : total value to paid-in)

Les performances

- Il est possible de calculer le TRI avec une calculette standard si seulement 2 cash flows ont eu lieu. Nous cherchons le taux (r) qui égalise la valeur présente et la valeur futur.
- Pour le fonds A : 300=100*(1+r)^7 ; 3^(1/7)=1+r ; r = 0,169931

Les formules

Le taux de rendement interne

Le TRI est le taux d'actualisation qui annule la Valeur Présente d'une série de flux financiers :

$$\sum_{t=1}^{n} \frac{I_t}{(1+TRI)^t} - I_O = 0$$

Avec :

I0 : l'investissement initial

It : le montant du flux financier ; positif (distribution et valeur liquidative) ou négatif (appel) constaté sur la période t

Le Multiple (TVPI : total value to paid-in)

Le multiple est le rapport à une date donnée des sommes distribuées et de la valeur liquidative des parts du fonds au total des appels :

$$\frac{\sum_{t=1}^{n} D_t + VL_n}{\sum_{t=1}^{n} A_t}$$

Avec :

Dt : Distribution à un instant t

At : Appel à un instant t

VLn : dernière Valeur Liquidative connue

Les performances

Fonds	Montant investi	année 0	année 1	année 2	année 3	année 4	année 5	année 6	année 7	TRI	Multiple
A	100	-100	0	0	0	0	0	0	300	17%	3
B	100	-100	0	150	0	0	0	0	0	22%	1,5

- En terme de TRI, le fonds B est supérieur, mais la plus value n'est que de 50% alors que le fonds A a triplé son capital.
- Dans lequel auriez vous préféré investir ?
- Gardez un œil critique !

Travail à faire pour le prochain cours

- Relire les questions de début de cours et s'assurer que vous savez y répondre
- Faire le SHOSHONE CASE (Source : CFA Institute ; CFA Level II Mock Exam 2014 ; Morning Session)