④ * **Status quo bias or endowment effect (example) :-**

* What you currently have seems better than what you do not have.
* Experimental subjects valued something that they possessed (after it was given to them) more than they would have if they had to consciously go out and buy the item.
  - Retain something you have than accquire the same object when you do not have it.

مثال : ازا ابوك جبلك ريحة ، راح تحتفظ فيها وتستخدمها بس ازا حكولك روح اشتري هي الريحة ، ما بتروح تشتريها.

⑤ * **Information over load :** (non-cognitive)

- More information Hard cause anxiety and diffecult to make a decision.

احنا منحب التنوع والخيارات الكثيرة بس لما يكون عندي خيارات كتيرة بتوتر (مثل دارس بالامتحان)

* Experiment involving tasting jams and jellies in a supermarket.
  - Attract more interest : large selection.
  - Lead more buying : small selection.

* **Cognitive Biases :-**

① **Representativeness** : (الا شو جربت باخد الخيار)

* people judge probabilities "by the degree to which A is representative of B, that is, by the degree to which A resembles B":

- A can be sampled & B a population OR A can be a person & B a group OR A can be an event/effect and B a process/cause.

Chapter 4

* Behavioral finance said that there is not efficient market
(الاشياء الي وجودها هي anomalies :)

- Anomalies : الاشياء الي خارج نطاق المنطق
(بتصير بالسوق بس ما الها تفسير)

* Anomalies : [1] lagged reactions to earning announcements.
[2] the small-firm effect
[3] Value versus growth
[4] momentum and reversal

(مثبتت انو الاسواق markets مش efficient)

[1] Lagged reactions to earning announcements :

بشكل طبيعي، الماركت بكونه efficient لما الشركة تعلن عن خبر منيح بترتفع السهم تاعها
عشان هيك بعملوا event study methodology (عشان اعرف شو عم بصير)

* earning announcements → split, dividends, return, growth

* event study : to look at a large number of similar events,
① to identify the period of study, ② define which stocks I want to study in this event (palted, ...), ③ estimate the expected return for each company for the announcement date (بدي احسب الE(R) للشركة اي نتيجتهم)
④ estimate the excess return for the Company
(excess return = actual return - expected return)
⑤ Make statistical analysis on the excess return to see if the returns are different from Zero (هل بتختلف الactual return عن exp return)

lecture 1
2-3-2021

Foundation of Finance

* Finance : art and science of how business units (firms, individuals, and government), they acquire money, manage money and spend money.

* 3 Main financial decisions :
  1. Financing decision (sources of financing : debt, equity)
     family / C.S or P.S / ...
  2. Investment decision (we can invest in a project / real estate / real assets / consumptions give me benefits)
  3. Payout Policy (dividends decision)

* Goals of the firm :-
  ① Max. shareholders wealth → stock price (market value) — stock price * # of stocks = market capitalization
  ② Max. profit → EPS

* Features of Efficient market :-
  ① Availability of info. (timing)
  ② Fair price
  ③ Liquidity
  ④ Low transaction cost

Chapter 5

Heuristics and Biases

to learn sth by yourself

Heuristics : اشياء انت بتعملها ممكن تأثر على قراراتك /٧ شعورية بشكل خاطئ
٧ بد هيك انت بتعرف / تعلمت

[1] perception
[2] Memory
[3] ~~Framing~~ Heuristics

[1] Perception :

- expectations influence perceptions. انت ايش بتتوقع
  وكيف انت بتطلع على الأمور وكيف نظرتك الها (الناس بتشوف الي بدها اياه)
- people see what they want to see.
- people experience cognitive dissonance when they simultaneously hold two thoughts ~~at~~ which are psychologically inconsistent.
  من كتر المعلومات الي عندي بصير عندي لخبطة وبقدرش اخد قرار (سهل تفرق بين خيارين بس اكتر ٧)
- perception is not just seeing what's there but it is influenced by the firm:
  - How tall is that sports announcer?
- Halo effects : Someone who likes one outstanding attribute of an individual likes everything about the individual. ازا بتحب حد بتشوفو احسن حد
- primacy vs recency effects. (لما ادرس بتزكر اخر اشي درستو)
  ولما يكون عنا معلومتين متناقضتين برجح على الاولي (الايمان)

ex: اشوف واحد لابس بدلة بتوقع تلقائي انو يكون مدير او موظف بشركة.

~~Framing~~

- House money effect : ما بفصل بين رأس المال تاعي وبين الأرباح
  - مثال : ما بحبش زيادة على المعاش تاعي بصير risky اكتر
  - you escalate risk as wealth grows

- Mental Accounting : categorize and evaluate economic outcomes by grouping assets into non fungible mental accounting
  - بقدرش اغيرها

Lecture 6
6.4.2021

- What is mental accounting ?
  - Is to separate accounts into nonfungible boxes.

Mental accounting cause investors to make irrational step of creating various sum of money differently.

ex → My money from my work, inheritance, gambling, bonus, saving

→

✱ Pricing Models :-

1 CAPM ⇒ $R = RF + B(RM - RF)$

مبنى منطقي او واقعي
invalid

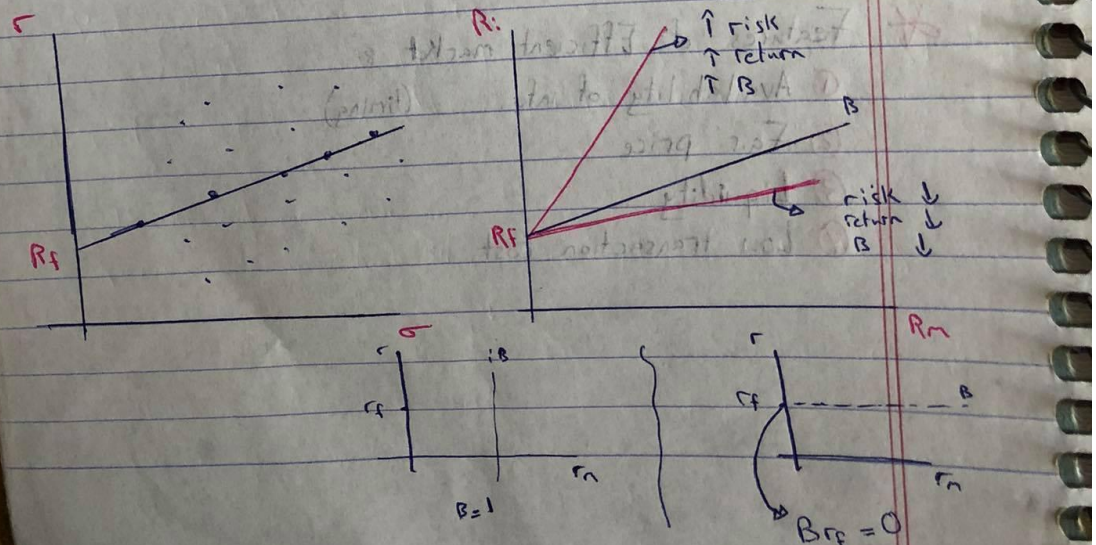
- assumptions :
  1) Efficient market
  2) Able to attain efficient portfolio (at a given of risk → highest return)
  3) Investors are rational
  4) Data are normally distributed.

2 APT → arbitrage pricing theory

⇒ $R = RF + BF_1 + BF_2 + \dots + BF_n$

3 3 factor model - Fama and French Model

⇒ $R = RF + BF_{\text{market return}} + BF_{\text{size of the firm}} + BF_{\text{debt-equity ratio}}$



Chapter ٢

مثال : لاعب قمار حامل معه $5 وراح يقامر فيهم وربح 900M بعدين رجع خسرهم كلهم . ← بس هو فعلياً خسر $5 (reference point)
لانه ال 900M شي مش معتبره (extra money) .

* fundgable : اني بتقدر انقل فلوسي من محل لمحل (كل ال wealth)

* Mental Accounting : is to separate accounts into nonfundgible boxes.

→ mental accounting cause investors to make irrational step of creating various sum of money differently.

بيفرق بين → my money from my work, inheritance, gambling, bonus, savings

* 5 mistakes when mental accounting :

[1] Investors separate accounts from each other.

[2] Investors may irrationally distinguish between return derived from income and return derived from capital position.

[3] Hesitate to sell investment once generated gains.
↳ house money effect (risk escalate as wealth grows)

[4] Allocate assets differently when employer's stock is involved.
↳ we have to remember that we have correlation between accounts.
we have to diversification, educate yourself,

[5] Total return is the most important, not the individual return.

integration is the most important

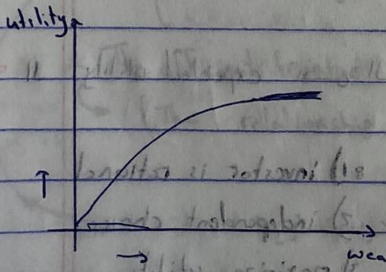
* Max. utility or max. satisfaction
* In Decision making process :-
  1. Independent decision based on relevant info.
  2. Seek max. utility
  3. Rational investors

* Rational preferences
* Preferences must be complete : person can compare all possible choice and assess preferences.
* Preferences are transitive ترتيب الاولوية
  - Transitive → rationality

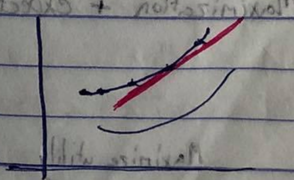
بس حتى لو تغير الاولوية هاد ما بعني اني غير عقلاني (حبيت اجرب اشي جديد)

lecture 3
9-3-2021

* Utility maximization
  * Utility function? → used to describe preferences → ordinal function
  * Preferred choice → different choices

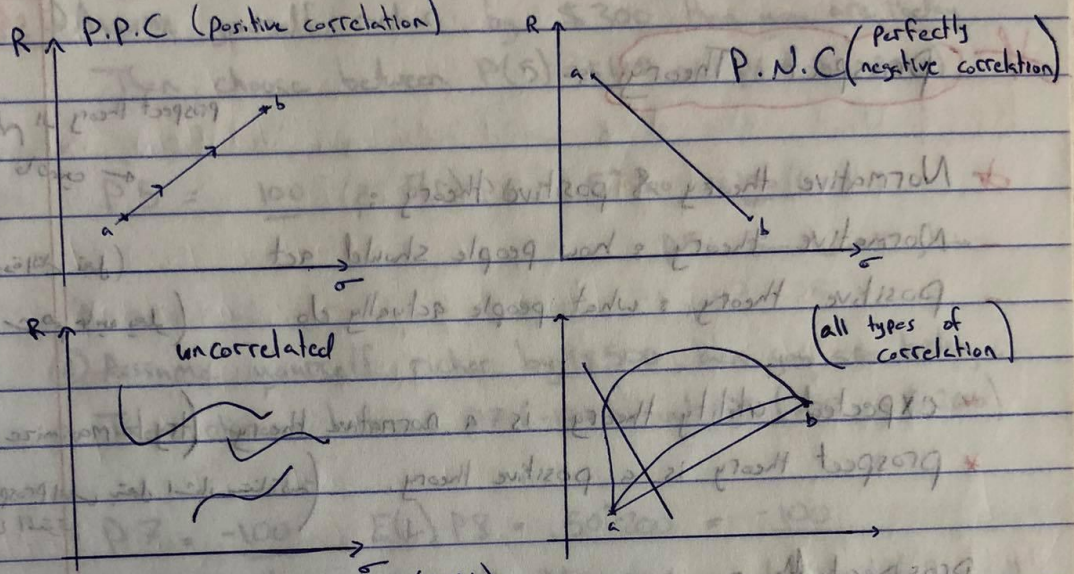


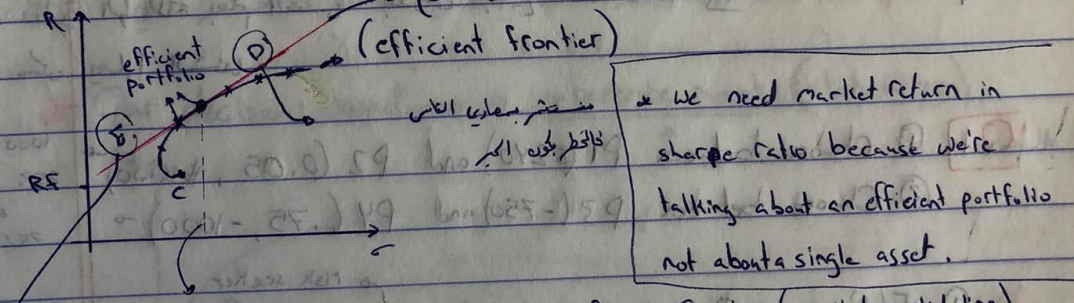
- Utility from wealth $u(\omega)$
- ↑ utility ⇒ ↑ wealth



Sharpe Ratio = RP / sd

RM - RF = RP





* we need market return in sharpe ratio because we're talking about an efficient portfolio not about a single asset.

* The efficient frontier is brought from CML (capital market line)
  ↳ (The relationship between EF & CML)

* Sentiment and noise:

- Noise is opinion or value unrelated to fundamental information (based on misinformation)
- Sentiment is correlated noise, and has the potential power to move markets.
- This implies that price movements can be driven by misinformation rather than information.

2. Noise-trader risk:

- Noise trader risk is risk that mispricing being exploited by the arbitrageur might worsen.
- It has been shown that noise-trader risk is systematic, which means that it cannot be diversified away.
- Real world arbitrageurs cannot wait it out because as professional money managers they do not have long horizons - they are usually evaluated at least at once per year.

3. Implementation costs:

- In some cases, horizon is short but short-selling is
  - Expensive (commissions, spreads, price impact & fees for shorting stock)
  - Difficult or even impossible (lack of availability regardless of fees; legal factors: many institutions cannot short.)
- Plus there is cost of finding these arbitrage opportunities

* Forms of market efficiency :-
  1) Weak form : past info. to expect future return
  2) Semi strong : past info. + current (present info.)
  3) Strong : past, current, insider info. (future).

* Flow of information : التستر على المعلومات

* Random walk hypothesis : انو لازم تكون الاسعار عشوائية وما استخدم
معلومات قديمة واعتمدها بس هي.

* Efficient Market :-
  [1] Rational investors → they able to attain efficient portfolio.
  [2] Data are normally distributed.

* Behavioral finance theory :-
  [1] Investors are not fully rational (cognitive psychology)
  [2] They cannot attain efficient portfolio (cont. basis).

  * Neoclassical economic
  * Firms and individual attempt to optimize their utility

* efficient portfolio : any given level of risk في return احقق اعلى
* portfolio : group of assets

Triangular arbitrage

ex: $Cdn / $US forex rate = 1.1426

$US / euro forex rate = 1.1855

What must $Cdn / euro rate be to nullify arbitrage?

1.1426 * 1.1855 = 1.3546

While this was observed, what if this had not been true? → arbitrage يؤدي

* What hampers arbitrage exploitation?

↳ [1] Fundamental risk
[2] Noise-trader risk
[3] Implementation costs

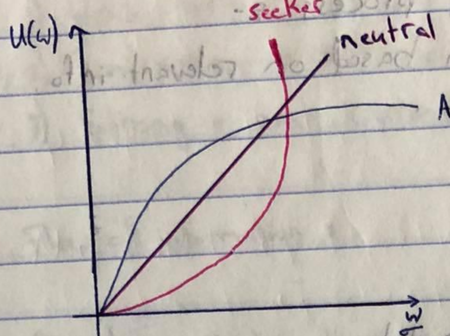
} arbitrage العوامل اللي بتأثر على ال

[1] Fundamental risk :

- If you think a stock is underpriced you can buy it, but :
- You might be sideswiped by the market.
- Or maybe by the industry.
- Plus there is idiosyncratic risk.
- Pure arbitrage seeks to eliminate all of these. بدون تفضيل
- problem : you need to find perfect substitutes.

* Even you totally manage fundamental risk, there is still noise-trader risk : spread may widen as investors get it even more wrong.

* Utility function according investors' risk preferences



* risk VS uncertainty

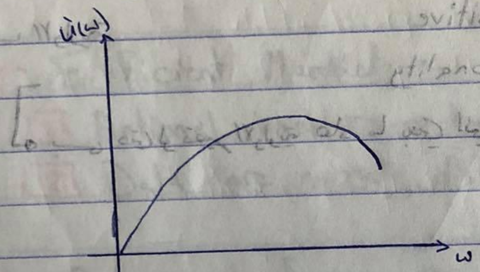
→ risk we know the probability of the risk or return

→ uncertainty we don't know the probability.

ex:

return	prob
12%	0.25
15%	0.5
17%	0.25

* Marginal utility → U'(w)



* Expected Utility Function → We are trying to defined rational behavior when people face uncertainty.

* ال expected utility نفس ال Max utility بس في ال expected في uncertainty

Utility Maximization + expected utility : 1) investor is rational
2) independent choice
3) maximize utility

الافتراضات بيقلم انو ال utility function بكون تركيزي كله على Maximize utility
expected بعمله adjustment ومرات بطلع على ال uncertainty برضو

Chapter 3

* **Framing** : [1] it's not what you say but how you say it.
  it's affected by : ① presentation
  ② perception
  ③ personal characteristics.

90% will pass > 10% will fail
99% fat free > 1% fat milk

[2] is the tendency of investors to respond to various situation differently based on the context which the information is presented or framed.

* **Integration VS Segregation** (how you perceive the losses)

* integration : انت بتطلع على الاشي بشكل متكامل
* Segregation : انت عم تفصل الاشياء الي صارت معك وعم ترجع لل reference point

→ لما تراهن بالشدة على .. شكل سيء يا بتخسر ما كلها يا بتربحها كلها. دمار يتعتمد على reference point وبتكون risk taker / seeker

→ خسارتك بتعتمد على الخسارة الي قبلها (بتعتمد على ال reference point)

⇐ هون بصير عنا breakeven point

* Break even effect prior lossed ditermine your referense point.

people to believe that they are on a streak and will continue to have successful outcomes.

(ازا هو نجح بـ خطة منفل مقتنعين انو راح ينجح دايما (مش لازم يجيب جوال بكل سبارة) ←

④ Gambler's fallacy:

↳ Gambler's fallacy may apply if people are fairly sure about nature of population.

- They think even small samples should always look like population.
  → so if you flip coin 9 times getting 6 heads and 3 tails, these people would say that a tail is more likely to come next...
- Winning lottery numbers are avoided based on mistaken view that they are not likely to come up again for a while.

دايماً الشرابه الي بلاو يلعب مرة تانية. ←

⑤ Overestimating predictability:

- Tendency to underestimate regression to mean amounts to exaggerating predictability. (طالب توجيهي بتوقع يجيب عالي)
- GPA example; subjects were asked to predict GPA in college from high school GPA of entrants to the college.
- high school average GPAs: 3.44 (sd = 0.36); GPA achieved at college was 3.08 (sd = 0.40)

الطلاب بالعادة بتوقعوا اعلى احتمال وابعدوا ال mean (average)

* Anchoring VS representativeness:
  - Anchoring says new information is discounted.
  - Representativeness (base rate neglect variety) says people are too influenced by latest information.
  - potential conflict between anchoring and representativeness in how people deal with new evidence.

→ Which is right? ⇒ perhaps both depending on situation.

- It is argued that people are "coarsely calibrated". Adjust their opinion ~~though~~ tough.
- Suppose morning forecast is for sun. Day start sunny. You go on a picnic.
  - Some dark clouds starts to move in.
  - You are anchored to prio view and discount clouds
  - More dark clouds : the same thing.
  - Now you coarsely transition - thinking that "it's going to rain for sure".
  - What is reality? → Never 0% or 100%. New information should alter probabilities but a flip-flop doesn't make sense.
- Coarse calibration has been used to explain tendency for prices to trend and eventually reverse.

② Type 2 : Cognitive & requiring effort (Mental Abilities)

- used when you have more time to ponder

⇒ Type 2 can overrule Type 1 (Cognitive > non-cognitive)

*① Self-preservation heuristics "Non-cognitive" (one of heuristic's bias)

لأنها طبيعة وسلوك البشر

* ازا ولد زغير شاف نار بيبعد عشانه يحمي حاله.

* ازا كنت بمكان وفيا صوت كتير عالي .. بسكر ذاني

* food tasting off ? → stop eating it.

→ These make good sense.

* other heuristics, which are more cognitive, are related to comfort with the familiar ...

*② Diversification heuristic (examble)

* Observe people at a buffet ..

- Many people are trying a bit of everything (الكلات رمضان متنوعة)

- Nobody wants to miss out on something good. + تنوع بالاوادي

→ Diversification sometimes comes naturally. (احنا كبشر منحب التنوع)

*③ Ambiguity aversion (uncertainty aversion)

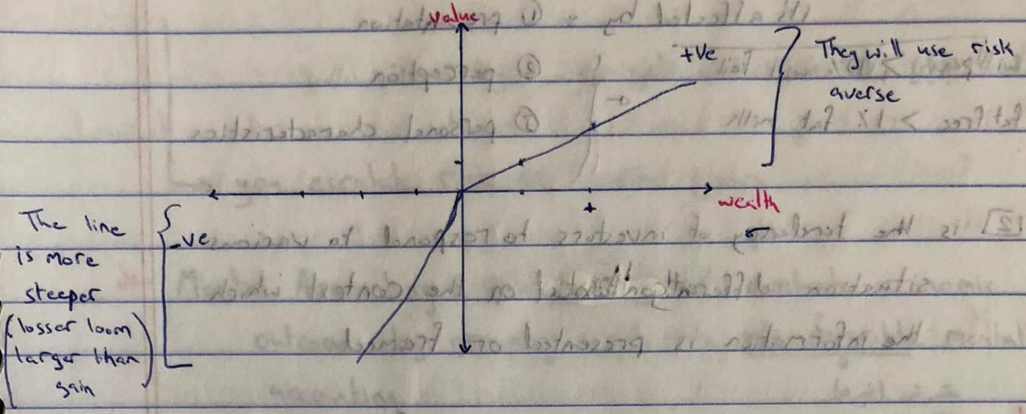
* In experiments, people are more willing to bet that a ball drawn at random is blue if they know the bag contains 50 red & 50 blue.

↳ Than if they know a bag contains blue & red balls in unknown proportions

* Lesson: people are more comfortable with risk VS uncertainty (ambiguity)

Chapter 3

expected return : $EP = \sum r^* w_i$



→ weights instead of probabilities

Q.5 Choose between prospects P13 (0.001, -\$5000) and P14 (1.0, -\$5)

منختار نخسر 5 دولار عشان ما نخاطر ونخسر اكثر (بشكل عام)

بس ممكن مالكي يتغير ب Fourfold pattern (بصير ال seeker ↔ averse والعكس .

✓ Four Fold pattern

W ↑	g	L
weight ↓ g	av ↓	se ↓
L	se	av

~~5 mistakes when mental accounting:~~

~~[1] Investors separate accounts from each other~~

~~[2] Investors may irrationally distinguish between return derived from income and return derived from capital positions~~

~~[3] Hesitate to sell investment once generated gains.~~

Mental Accounting -8-

[1] حسب استفتاء: شخص معو 20$ راح عالسينما شرى تذكرة ب 10$ وضاعت منو.
← 59% ما بشترو غيرها ، 46% بشترو غيرها.

[2] شخص معو 20$ راح عالسينما ، اكتشف انو ضايع منو 10$ وما ضل غير 10$ الي هي حق التيكت. بشتري ولا بتروح؟.
← 88% بشتروها

لانو هون احنا ما ضيعنا ~~(مصاري)~~ تذكرة ، احنا ضيعنا مصاري ، فاحنا منفصل بين الشغلتين وهاد الي منسمي Mental accounting (انت بتفصل بعقلك بين حساباتك).

ex) ازا انا عامل saving انا ما بقرب عليهم اما ازا اجاني مكافئة او دخل اضافي بصرفو بدون ما افكر.

* Allais paradox → investor behaviors and psychology
→ when people act contrary to the expected utility theory.

* Prospect Theory :-

عشان نفهم الـ prospect theory لازم نكون فاهمين ←

* Normative theory & positive theory :

- Normative theory : how people should act (اللي المفروض الناس تعمل)
- positive theory : what people actually do (بعملوا الناس شو هم حابين يعملوا)

* expected utility theory is a normative theory (try to maximize his utility)
* prospect theory is a positive theory. (لانو بالـ prospect الناس بتعمل اشياء متناقضة وعكس المتوقع)

prospect theory : نظرية الها علاقة بعلم النفس ، بتدرس جميع الاحتمالات اللي ممكن يعملها الشخص

Q.1 ① Choose between P1 ($240) and P2 (0.25 , $1000) → نربح 1000 بنسبة 25%
② Choose between P3 (-750) and P4 (.75, -1000) → خسارة بنسبة 75%

① E(R) = r * pr → 1000 * .25 = 250 (هم risk seeker) } ⇒ P2 > P1
risk averse ← 240 * 1 = 240 } ⇒ P1 (بس المعظم بختار P1 لانو ربح اكيد)

② E(L) = 750
E(L) = 1000 * .75 = 750 } P4 الـ expected للاحتمالين نفس الاشي فبختار P4 لانو في احتمال ما اخسر ٪ اشي
probable loss → risk seeker

* This depend on the nature of the prospect

Q.2 ① Assume yourself richer by \$300 than you are today. Then choose between P(5) = \$100 and P6 (.50, 200)

P5 = 100 , E(r) P6 = .5 * 200 = 100

بختار الاضمن ← P5

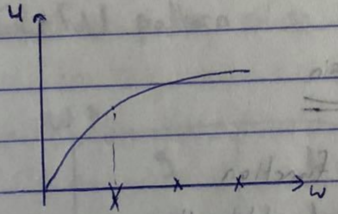
② Assume yourself richer by \$500 than you are today. Then choose between P7 (-100 \$) and P8 (.50, - \$200)

P7 = -100 , E(L) P8 = .50 * -200 = -100

ال expected loss متساوي فبختار P8 لانو في احتمال ما أخسر اشي

* Our decision based on a reference point (status quo)

بال decision تاعتي دايما بعتمد على ↑



* Expected utility theory: level of wealth (final level, current) regardless to the initial level of wealth
* Prospect theory: reference point (changes in wealth levels)

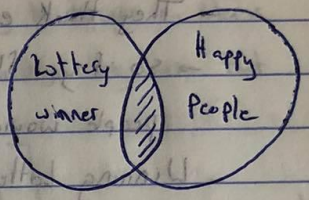
* Behaviors associated with representativeness:
- Conjunction fallacy: when you assume things and relate them.
- Base rate neglect/underweighting: ignore base rate inform
- Hot hand
- Gambler's fallacy
- Overestimating probability

① Conjuction fallacy:

Q. which seems more likely?

a. Jane is a lottery winner

b. Jane is happy lottery winner.



→ Many pick b, but a must have a higher probability, as a Venn diagram clearly shows.

* problem: conjunction fallacy.

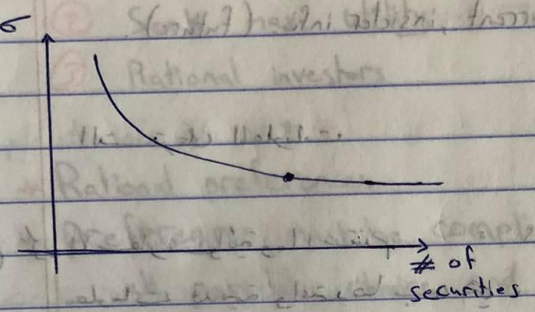
② Base rate neglect:

↳ Ignore base rate information or general information and focus on specific information.

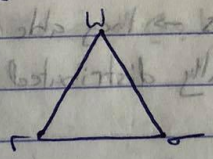
③ Hot hand phenomenon:

The hot-hand fallacy is the tendency to believe that someone who has been successful in a task or activity is more likely to be successful again in further attempts. The hot-hand fallacy derives from the saying that athletes have "hot hands" when they repeatedly score, causing →

* Total risk = diversifiable risk + non-diversifiable risk
= controllable (firm specific) (unsystematic)
+ market risk (uncontrollable) (systematic risk) → β



* decision-making process → Wealth, Risk, Return



* Risk prefrences:
① Risk averse: he/she requires high return to compensate the higher risk (most rational)
② Risk neutral (indifferent): regardless to the risk he/she seeks highest return.
③ Risk seeker (lover, taker): like gamblers, they seek highest risk even if they expect low return (low weight return)

Key trading rules that have shown to be effective :

- Small cap portfolio VS. large cap portfolios ?
  → small cap wins out.

بال efficient market المعروف ما بيفرقو كتير بعضو بس بالدراسة اللي عملوها وجدو انو ال small cap بتنجح اكتر.

- Portfolios formed based on P/Es :
  → Low P/Es do better.

اغلب شركات فيها ال P/E عالية و P/E واطية. عادة ال growth stocks ال P/E تابعا عالي و ال value stock ال P/E ratio تابعا واطي ووجدو انو ال P/E الواطية (VS) هي الأحسن.

- Earnings announcements momentum :
  → Reaction to extreme announcements is slow.

الناس ما بتتسرع عن شركة انها عملت ارباح اكتر او اقل بكتير من المتوقع بتكون ردة فعلها كتير بطيئة وبالعادة بتمشي على ال efficient markets انو لازم تكون ردات الفعل سريعة.

- Value VS Growth portfolios (usually value firm has a high book/market and a growth firm here is one with an absence of value.
  → Go for value.

* Momentum VS reversal → go to momentum

momentum → ازا الشركة عاملة ربح وعم تطلع الكل بكي انها راح تكمل طلوع

reversal → الشركات اللي عم تنزل ممكن تعمل reverse وترجع تطلع لهيك صار يفضل تاخذ من الشركات النازلة.

Ex: 3Com carves out in an IPO 5% of its subsidiary Palm. At the same time, 3Com announced that in the near future, the remaining 95% of the shares would be distributed to current shareholders (roughly 1.5 of Palm / share of 3Com).

⇒ Two ways of buying Palm:
① buy Palm directly.
② Buy 3Com getting Palm and rest of 3Com business

→ Clearly if investors are rational:
P(3Com) = 1.5 * P(Palm) + residual value

→ After 1st day of Palm trading:
P(Palm) = $95.06
P(3Com) = $81.81
Implied residual value: less than zero

→ Implication: Value of residual 3Com was: negative $22 billion

→ 2 things are needed for mispricing to exist:
- Irrational investors
- Limits to arbitrage (here due to implementation costs)

* efficient market ... → sell short ...

2 Memory tricks :

- Memory is not a simple matter of information retrieval :
  - It is reconstructive
  - It is variable in intensity .. (with emotion playing a role)
  - It is prone to self-serving distortion (hindsight bias)

← انا برجع بعيد كتابتها (عقلي بكتب اشياء عشان يرتاح) والـ emotions كتير بتأثر على الـ memory
بتحكي انك كنت عارف انو هيك راح يصير بعد ما الاشي يصير (كنت عارف انو مدريد راح يربح --)

← لانو احنا ما منحب نحس بعدم الراحة ومنحب نتذكر الاشياء المفرحة .

3 Heuristics :

- Heuristics or rules-of-thumb : decision-making shortcuts.
- Necessary because the world, being a complicated place, must be simplified in order to allow ~~the~~ decisions to be made.
- Heuristics often make sense but ~~often~~ falter when used outside of their natural domain.

← الاشي منطقي انو اخذ قراراتي بناءً على اشياء تعلمتها ، بس ازا بصير استخدمها بكل مكان وتطلع عن الطبيعة الي لازم استخدمها فيها بصير عندي مشاكل.

* Type 1 & 2 heuristics :

① Type 1 : Autonomic and non-cognitive, conserving on effort. (Feelings & Behaviors)
- Used when very quick choice called for.
- or when it's "no big deal"

(الها علاقة بالمشاعر والسلوك (ازا عطشانة بشرب ازا مش عطشانة بشرب))

* Biases related to representativeness :

- Recency : is a cognitive bias that favors recent events over historic ones.

- Salience :
→ The salience bias describes our tendency to focus on items or information that are more noteworthy while ignoring those that do not grab our attention.
↳ [Dramatic evidence is more compelling]

- Availability :
↳ The availability heuristic describes our tendency to use information that comes to mind quickly and easily when making

* Anchoring :
* People are initially anchored on their prior belief.
* Quickly multiply these eight numbers : 1*2*3*4*5*6*7*8
- Most people will come up with a low estimate, anchored on product of first 4 or 5. - A bit better (but still too low) with : 8*7*6*5*4*3*2*1

* What's the difference between intrinsic value & Market Value ?

~~↳ In efficient~~

↳ In efficient Markets ⇒ intrinsic value = Market Value but the intrinsic value changes as new information arrived in the market place.

+ intrinsic value cannot be known with certainity and can only be estimated.

ازا شي intrinsic value ≠ MV معناته efficient

Q. The weak form of efficient market hypothesis asserts that stock price fully reflect which of the following ?

↳ historical info.

* هل ال anomalies راح انتقل للأبد ؟

لا ، لانو كل الناس بتصير تعرف عنها فبياولو يغيروها و يحسنوها.

* Loss aversion ? → to be more risk averse

لا يكون عندي احتمال للخسارة بصير risk averse بس لما يكون عندي احتمال ربح بصير risky اكثر وبقل ال risk averse عندي.

- Predictable serial correlation :
  ⇒ medium-term momentum
- Long-term winners vs losers :
  ⇒ reversals : losers become winners

* Theoretical foundations of efficient markets :
  → Market efficiency requires that only one of the following three conditions need hold :
  1. Universal rationality (The investor or customer is rational)
  2. Uncorrelated errors
  3. Unlimited arbitrage

* Market efficiency and arbitrage :
  - One of the main foundations of EMH is no-arbitrage condition.
  - If there are pricing errors (caused by irrational investors) smart-money traders arbitrage them away.
  - No free lunches are left on the table.

* Avoid : (loss avoidance) (بحاول اتجنب اي خسارة (بختار احتمال اللي ما أخسر)
* Aversion : (risk aversion) : بكون الشخص عقلاني وما بعرض حالو لخطر كبير ازا ما في عائد كبير

Q.3 What value of x would make you indifferent between p9 (0) and p10 (0.50, x, -25)?

كل شخص ممكن يختار رقم، يعني ممكن يختار 25 , 50 , 75 ...
بشكل عام الناس بتحاول تتجنب الخسارة وممكن تدفع مبلغ حتى تتفادى خسارة اكبر.

Q.4 Choose between prospects p11 (0.001, 5000$) and p12 (1.0, $5).

المعظم راح يختار p11 لانو بشكل عام الانسان طماع وبحب يربح اكثر
اما ازا كان نفس الاشي خسارة بدل ربح بفضل يدفع 5 , لا انه يدفع 5000 بعدين

⟹ losses loom larger than gain

* Value function VS utility function
  prospect theory VS expected utility theory.

Value : is defined by loss or gain relative to a reference point