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ASSET SWAPS

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Agenda

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  - Why asset swap a bond
- Drivers of swap spread
- Types of asset swaps
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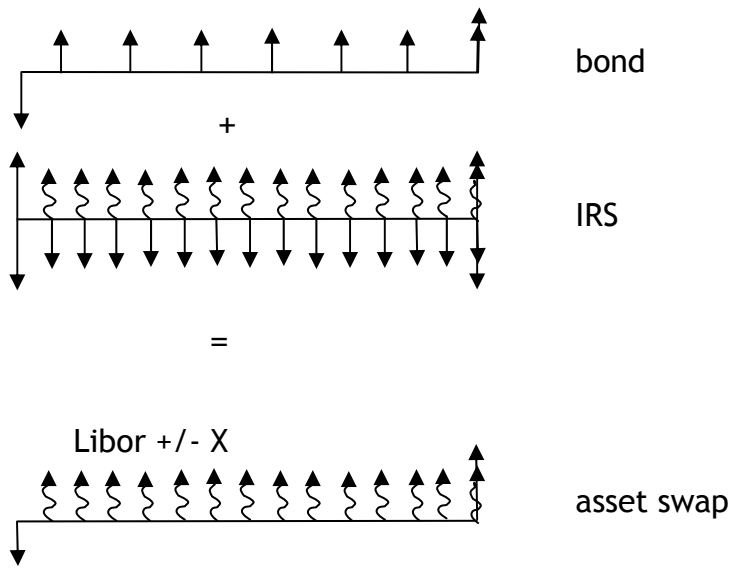
  - Par/Par
  - True
- Numerical example

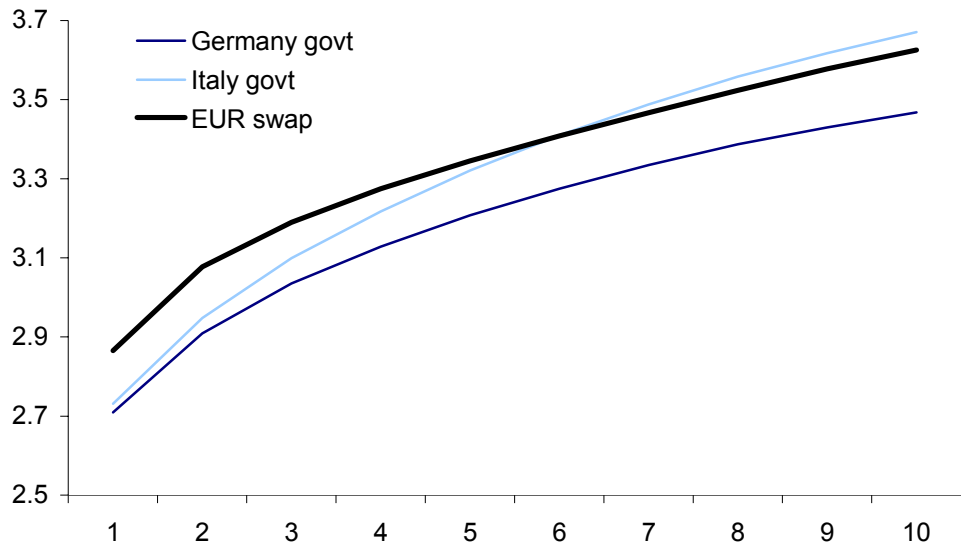
Basic concepts: definition

- An asset swap is a transaction that combines
  - an interest rate security (usually fixed coupon)
  - an interest rate swap (sometimes a cross currency swap)
  - into a Libor +/- X spread package where X is called swap spread
- The swap spread can be approximated by the spread between the IRR of the instrument and the swap rate for the same maturity

Asset swap package



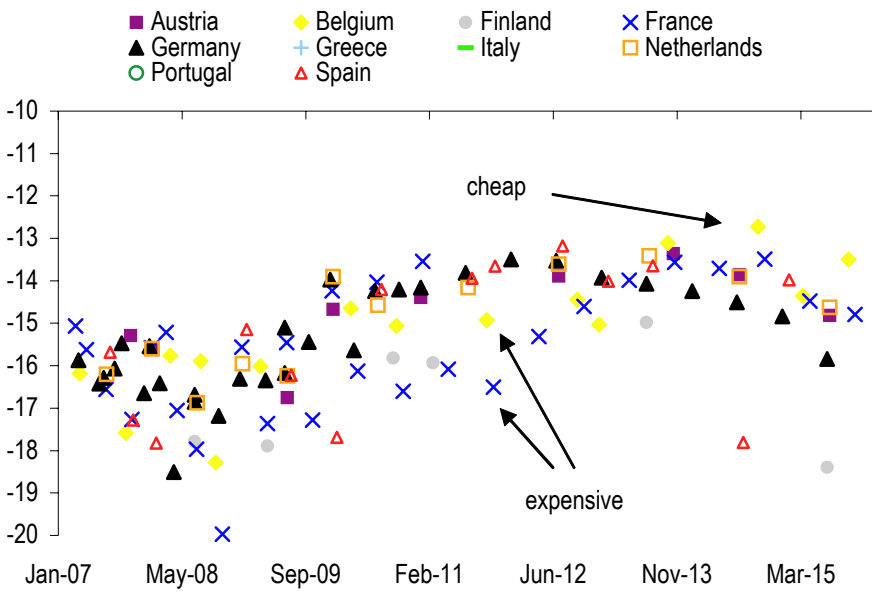
Example: Euro area interest rate curves
In %, maturity on x-axis



Basic concepts: why asset swap a bond

- Every bond's yield incorporates a credit and liquidity premium unique to the bond
- Asset swap structures enable to isolate the credit and liquidity component
- Use asset swaps to avoid unwanted duration and curve risk in relative value trading and to take macro views

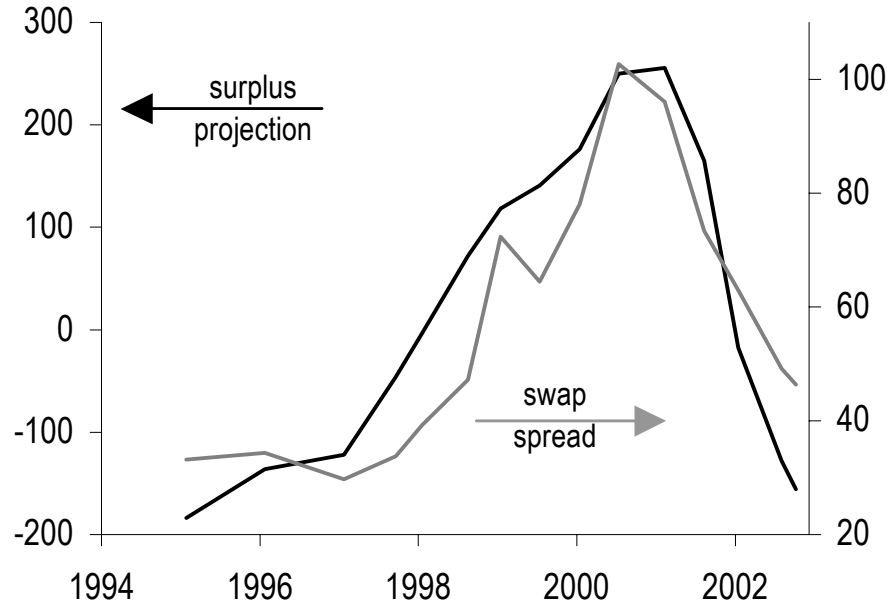
Swap spread curve of high rates EMU countries
In bp



Drivers of swap spreads

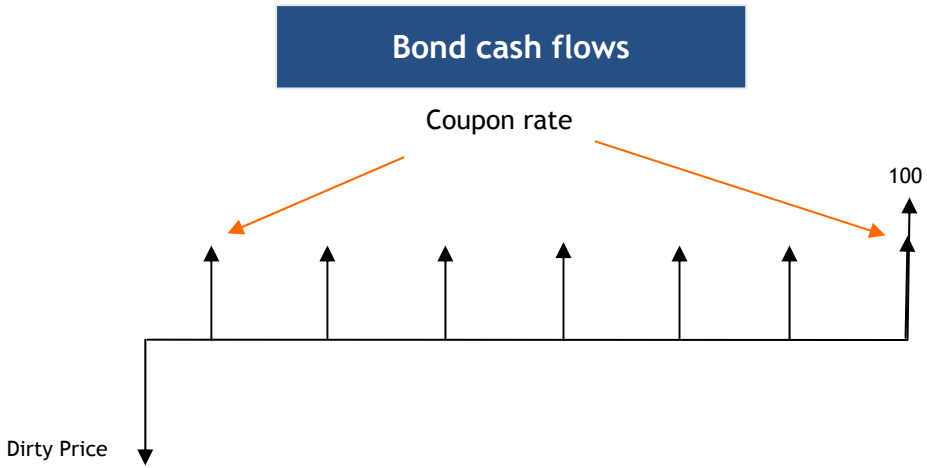
- Government budget deficit (most important) -> bond issuance and perceived credit quality
- Risk and liquidity preferences
- Shape of the yield curve
- Credit conditions
  - Level of yields
  - Bank stock index
- Technical factors (market flows)
  - mortgage market participants
  - flight to quality
  - corporate swapping activity

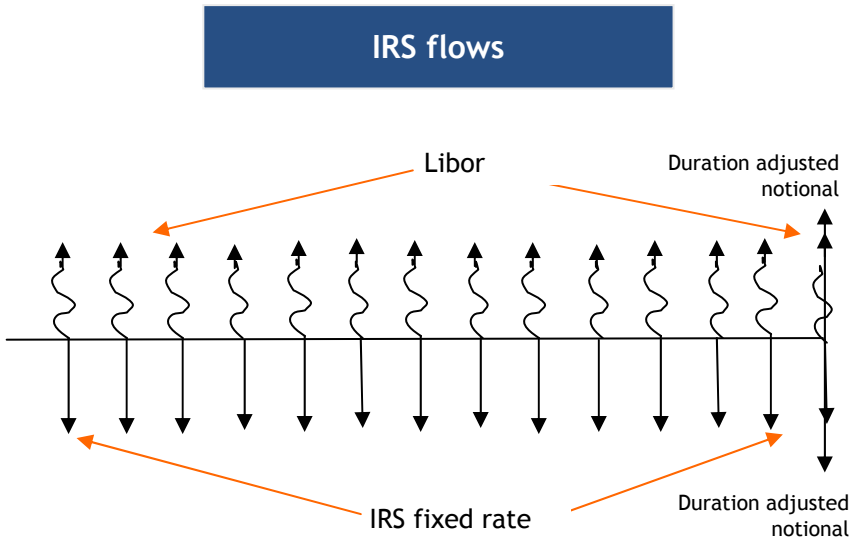
6M moving average of 10-year US swap spreads (bp) versus budget deficit/surplus ($bn)



Types of asset swap: 1. optical

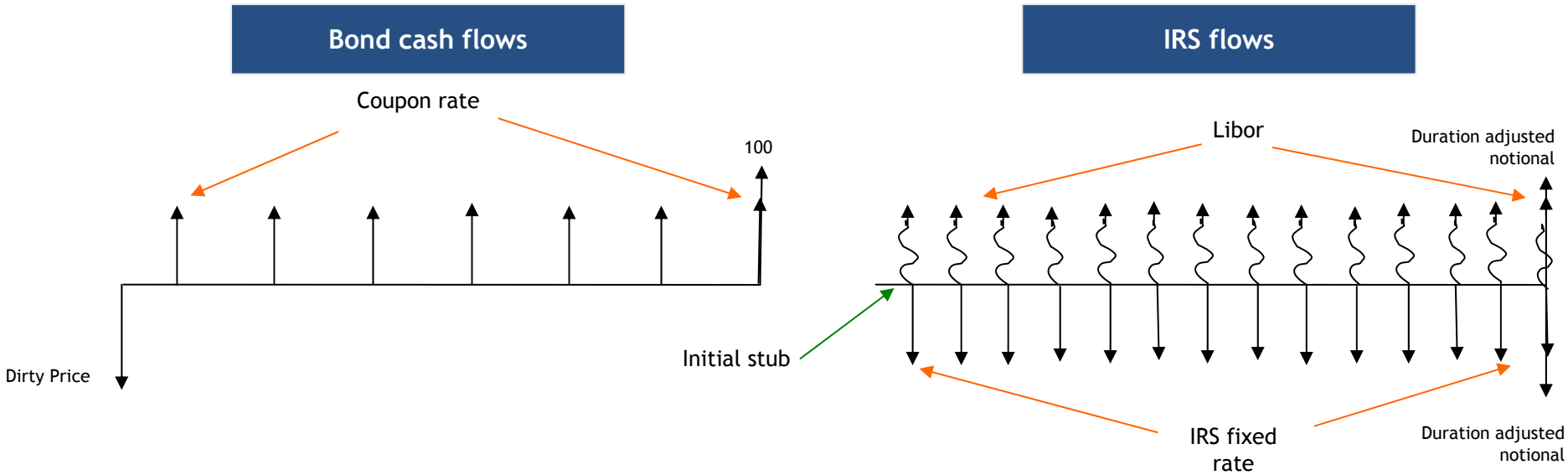
- The simplest type of swap spread
  - It packages the bond with a liquid vanilla swap (e.g. 10y benchmark with 10-year swap)
  - Notional of the swap adjusted to hedge the duration risk on the bond
  - No upfront payment on the swap
  - Cash flow mismatch, coupon rate <> IRS fixed rate
  - Used especially in the UK market
- Advantages
  - Liquidity
- Disadvantages
  - Curve and convexity risk





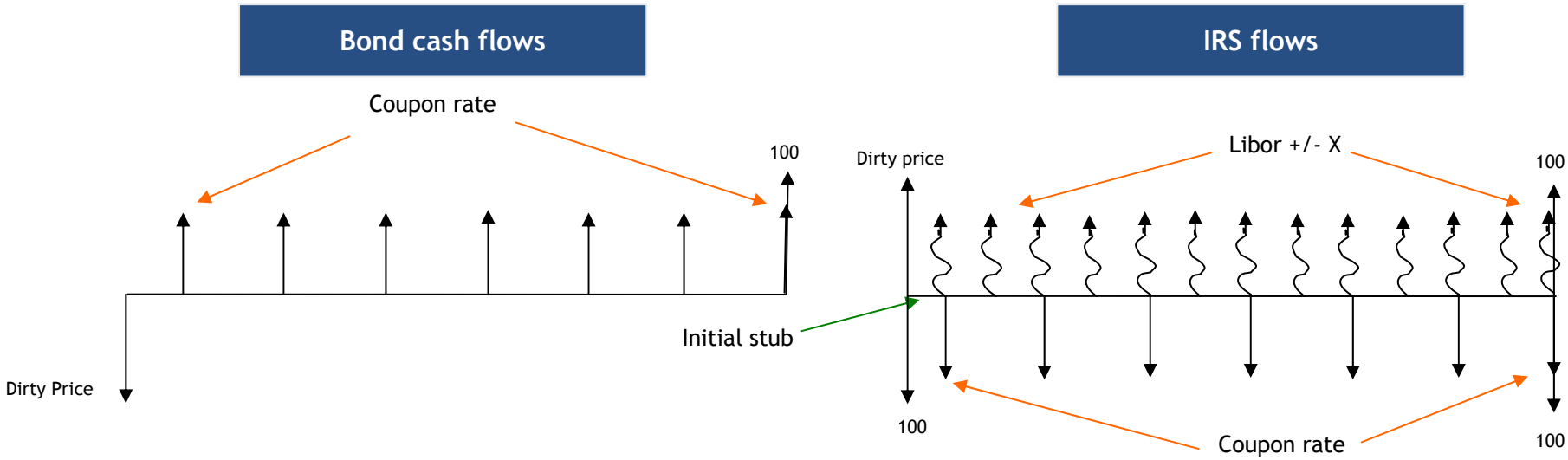
Types of asset swap: 2. maturity-matched

- The simplest type of swap spread
  - It packages a bond with a swap with the same maturity date
  - Notional of the swap adjusted to hedge the duration risk on the bond
  - Cash flow mismatch, coupon rate <> IRS fixed rate
  - Traded at lot in €
- Advantages
  - Completely eliminates duration and curve exposure
  - Transparency: easy to price
- Disadvantages
  - Convexity risk remains, especially relevant for bonds way off par



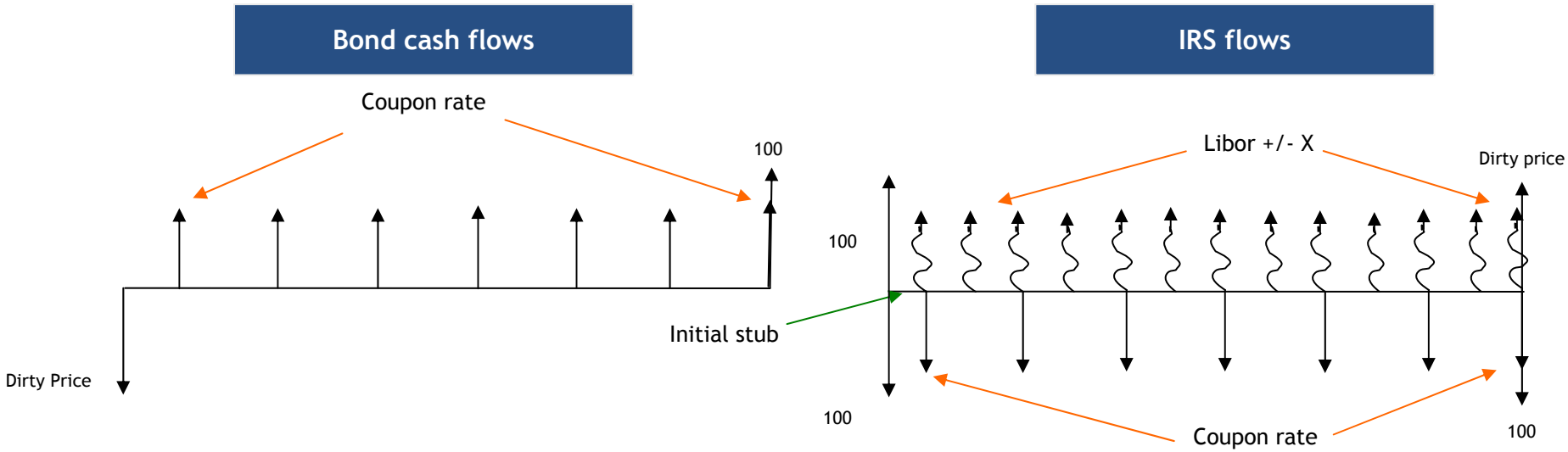
Types of asset swap: 3. par/par

- Addresses the problem of cash flow mismatch
  - It packages a bond with a swap structure with exactly the same fixed cash flows as the bond; the floating cash flows are Libor +/- X
  - The package trades at 100 and 100 is paid at maturity
  - Roughly 20% of the volumes in €
- Advantages
  - Leaves no duration or curve risk
- Disadvantages
  - It assumes cash flows are borrowed/invested at Libor



Types of asset swap: 4. true

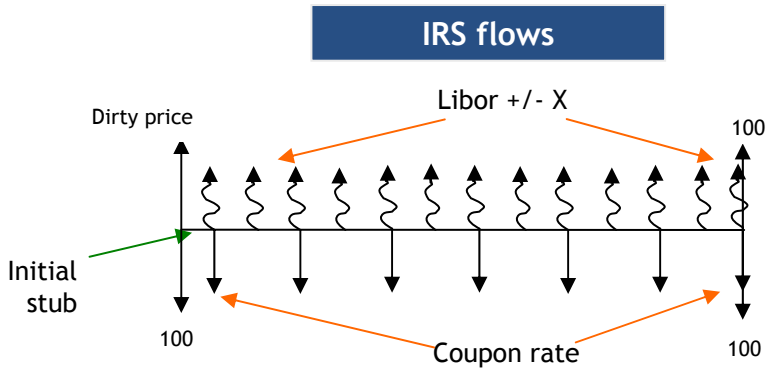
- Addresses the problem of cash flow mismatch
  - It packages a bond with a swap structure with exactly the same fixed cash flows as the bond; the floating cash flows are Libor +/- X
  - The package trades at the dirty price and the dirty price is paid at maturity
  - Rarely traded in €
- Advantages
  - Leaves no duration or curve risk
- Disadvantages
  - It assumes cash flows are borrowed/invested at Libor



Numerical example: par/par asset swap

- Asset swap a 5.5 year 5% coupon bond trading at a clean price of 108.97
  - Need accrued interest (3.19) to calculate dirty price (112.16)
  - Need zero rate curve derived from swap curve

0.5 year	2.71%
1 year	2.91%
1.5 year	3.01%
2 year	3.09%
2.5 year	3.15%
3 year	3.20%
3.5 year	3.23%
4 year	3.28%
4.5 year	3.30%
5 year	3.34%
5.5 year	3.40%



PV of swap = -112.16 + 100 + 5/(1.0271)^0.5 + 5/(1.0301)^1.5 + 5/(1.0315)^2.5 + 5/(1.0323)^3.5 + 5/(1.0330)^4.5 + 105/(1.034)^5.5 = 98.34

-1.66 = 98.34 - 100 to be amortised in equal (x) payments over the floating libor payments

-1.66 = x/(1.0271)^0.5 + x/(1.0291)^1 + x/(1.0301)^1.5 + x/(1.0309)^2 + x/(1.0315)^2.5 + x/(1.0320)^3 + x/(1.0323)^3.5 + x/(1.0328)^4 + x/(1.0330)^4.5 + x/(1.0334)^5 + x/(1.034)^5.5

x = -1.66/10.0096 = -0.166

Libor spread = -0.166 * 2 * 360/365 (to change the rate from bond basis to MMKT basis) = -32.7bp

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