



An analysis of the player transfer activity of each English Premier League club in the Summer 2020 International Transfer Window to determine, based on quantitative measures, which club has been most successful

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1. So, how active have the Premier League clubs been?

Following on from what was an interesting English Premier League (EPL) 2019/20 campaign, the Summer Transfer Window is a time where clubs make their preparations for the forthcoming season and fans hope that their team will be active bringing in new talent.

In total the EPL Clubs have spent in excess of **£1.2bn** on player transfers in this window and only generated **£400m** in player sales. Overall the net expenditure during the Summer Transfer Window has been **£820m**.

The biggest transfer of the Summer 2020 Transfer Window saw the arrival of attacking midfielder **Kai Havertz** at **Chelsea**, a **£72m** signing from German side **Bayer Leverkusen**. This transfer was less than half of the total **£222m** **Chelsea** have spent on new players during this window as they look to strengthen their squad now that the restrictions of their recent transfer embargo have been lifted.

Of the three newly promoted teams, **Leeds United** have been the most proactive in the transfer market, spending in excess of **£95m** on new signings, the most high profile one being Centre Forward **Rodrigo**, a deadline day signing from **Valencia** for a fee of **£27m**.

2. The research headlines

- The player signing of the Summer Transfer Window was **Arsenal's** signing of **Pablo Mari**, paying **£14m** for a player whose objective performance levels show his value should be in excess of **£44.7m**.
- The best player sale made in this Summer Transfer Window was that of **Álvaro Morata** to **Atlético Madrid**. His objective performance levels value the player at **£32.1m** but **Atlético Madrid** paid a massive fee of **£50m**, a value delta of **£17.9m (36%)**. This was a highly profitable transaction for **Chelsea** and considered to be a very intelligent piece of business.
- The sale of **Mario Pasalic** for only **£13.5m** to **Atalanta** from **Chelsea** was not a profitable deal for the selling club. The player's objective performance shows he has an *Intrinsic Value* in excess of **£43m**.

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3. A little bit of science...

At Carteret Analytics we have developed the quantitative analysis utilised to good effect in investment banking for trading strategy, portfolio optimisation, derivatives pricing and hedging, and risk management by our sister corporate finance firm, Carteret Capital - and applied it to football.

In particular, our work provides an objective measure of how good a football player really is - removing all the subjective noise and opinions.

An integral part of the analysis is to calculate a **Carteret Rating⁴** for every football player, which rates and values a player's contribution to his team winning football matches. It is incredibly accurate at predicting a player's capabilities. Indeed, we always start with the premise that a professional football club's primary objective is to win matches - and therefore the more a player contributes to his team winning matches, the better the player.

Carteret Analytics has also extended the *Carteret Rating* to give each player an **Intrinsic Value** (in monetary terms). This is essentially the value of the player 'in use' - the monetary value of his contribution to his club winning football matches. It is a sophisticated financial calculation - utilising proprietary algorithms - and which can be applied to and by other clubs. This enables, for example, a prospective buying club to virtually (yet objectively) 'transplant' a player into its own team to determine his potential *Intrinsic Value* for the buying club. Once the prospective buying club has this information, it can help inform them of the appropriate transfer fee to offer to the player's current club.

4. Who bought players for more than their Intrinsic Value?

There have been notable transfers completed by clubs which are at a price that is more than **10%** over their *Intrinsic Value* to the buying club. This is what we have classed as a notable overpayment for the predicted performance that the player will bring to the team.

The *Intrinsic Value* of **Rúben Dias** to Manchester City is **£31.1m**. The *Intrinsic Value* essentially represents a break-even position for Manchester City. This is the contribution they can expect **Dias** to make to the Manchester City team. This means that as Manchester City paid **£63m** for **Dias's** services, they have overpaid by **£31.9m**. Manchester City may argue that as he is only 23 years old, he has time to mature and come into his prime to prove that they have not overpaid for his services.

There is a similar situation with **Fábio Silva's** arrival at Wolverhampton Wanderers and **Kai Havertz's** arrival at Chelsea. All three transfers have been shown to be questionable pricing decisions based upon the *Intrinsic Values* each player holds for their new clubs.

5. Who sold players for less than their Intrinsic Value?

In the same fashion as the clubs who overpaid for players, the science is the same for the clubs who have sold their players at an undervalue of more than 10% less than their *Intrinsic Value*.

⁴ *Carteret Rating*: this is a proprietary method of determining how good a player really is. It is a significant and leading-edge algorithm. We assess a player by identifying every match in which he has been involved (for which we have data) and identifying the key events in each and every one of those matches. These Key Match Events ("KMEs") are events that led to a goal being scored; could have led to a goal being scored; led to a goal being conceded; or could have led to a goal being conceded. Then, for each and every KME, in each and every single match, we analyse that player's contribution to each of those KMEs. This is a substantial piece of analysis, and one which produces a unique *Carteret Rating* for the player. It is a dynamic rating, and it changes with each additional match played.

The player that was sold for the largest amount lower than their *Intrinsic Value* to their previous club, was **Mario Pasalic** from Chelsea to Atalanta. The *Intrinsic Value* he held for Chelsea was **£43.4m** meaning that Chelsea sold **Pasalic** at an undervalue of just under **£30m** when they allowed him to depart to join Atalanta for **£13.5m**. As **Pasalic** is only 25, he is yet to reach what is considered to be the prime age of a football player's career (usually between 27-29 years old). But with such a high *Intrinsic Value* already, this suggests that Chelsea should have negotiated to increase the transfer fee from Atalanta to better reflect the loss of a player who's value would continue to increase as he matures. In addition, his contribution to Chelsea winning football matches was at a much higher objective performance level than was reflected in the transfer fee paid.

Jordan Hugill's transfer from West Ham to Norwich City and **Harrison Reed's** transfer from Southampton to Fulham are both transfers that have been completed for values lower than their *Intrinsic Value*. At 28 and 25 respectively, they have been sold at values **£20.3m** and **£16.1m** less than their *Intrinsic Values* to their previous clubs.

6. Intelligent business

Arsenal retaining the services of former loanee **Pablo Marí** in the Summer Transfer Window is the steal of the summer. The transfer value for his move from Flamengo to Arsenal cost only **£14m**. His *Intrinsic Value* to Arsenal is currently **£44.7m**. Arsenal have secured an experienced player for almost **220%** less than the comparative monetary value of his objective performance levels.

Another excellent piece of transfer business was Liverpool's purchase of Left-sided defender **Konstantinos Tsimikas** from Greek Super League team Olympiacos. **Tsimikas** was bought for a fee of only **£12m** but his *Intrinsic Value* to Liverpool is **£35.6m**. **Tsimikas** has received three international caps for Greece, he was also named in the Europa League Team of The Week during his time at Olympiacos.

Centre Forward **Álvaro Morata** being sold to Atletico Madrid by Chelsea was the best sale of the Transfer Window in terms of value to the selling club. **Morata** had an *Intrinsic Value* of **£32.1m** to Chelsea but was sold for a massive **£50m** after a successful loan spell at Madrid during the 2019/20 season. The *Intrinsic Value* demonstrates, in monetary terms, **Morata's** contribution to Chelsea winning football matches. With such a high transfer value when comparing it to his *Intrinsic Value*, it shows Chelsea have made a great profit on the deal and now have the funds to find an even better player or players.

Another notable player sale which we have identified as good business was the sale of Left-sided Forward **Leroy Sané** by Manchester City to Bayern Munich for **£54m**. **Sané** had an *Intrinsic Value* of **£37.9m**, which means an upside on the deal for Manchester City of almost **30%** when compared to his *Intrinsic Value*. His lower *Intrinsic Value* demonstrates his contribution to his team winning football matches is not as valuable as the market considers it to be.

The data suggests that the transfer of Left-sided Forward **Diogo Jota** to Liverpool was intelligent business by Wolverhampton Wanderers. **Jota** had an *Intrinsic value* of **£25.9m**, but was sold for a fee of **£41m** which means an upside on the deal for Wolverhampton Wanderers of **37%** when compared to his *Intrinsic Value*.

7. Intrinsic Value - the data analysis of 'The good, the average and the... let's see'

The tables below highlight whether a team has had a good, average or below average Summer Transfer Window by showing the *Intrinsic Value* each player holds for the club that they are either arriving to or departing from within the EPL in contrast with their actual transfer value.

'Good Value' is defined as completing transfers where the Club has either:

- purchased players for $\geq 10\%$ less than their *Intrinsic Value*; or
- sold players for $\geq 10\%$ more than their *Intrinsic Value*.

'Average Value' is defined as having either:

- purchasing/selling players for values within 10% of their *Intrinsic Value*.

'Below Average Value' is defined as completing transfers where the Club has either:

- purchased players for $\leq 10\%$ more than their *Intrinsic Value*; or
- sold players for $\leq 10\%$ less than their *Intrinsic Value*

EPL Clubs - Good Value Business - Summer Transfer Window 2020					
Team	Arrivals	Departures	Intrinsic Value	Transfer Fee	Intrinsic Value Delta
Tottenham	Sergio Reguilón	Kyle Walker-Peters	£33,524,000	£28,000,000	£5,524,000
	Matt Doherty		£30,661,800	£15,000,000	£15,661,800
	Pierre-Emile Höjbjerg		£39,304,000	£15,000,000	£24,304,000
			£24,658,500	£12,000,000	-£12,658,500
Aston Villa	Ollie Watkins		£35,190,000	£28,000,000	£7,190,000
	Bertrand Traoré		£17,680,000	£17,000,000	£680,000
	Emiliano Martínez		£22,877,400	£20,000,000	£2,877,400
	Matty Cash		£25,347,000	£16,000,000	£9,347,000
Everton	Allan		£25,132,500	£22,500,000	£2,632,500
	Ben Godfrey		£41,292,000	£25,000,000	£16,292,000
	Abdoulaye Doucouré		£38,648,000	£20,000,000	£18,648,000
Newcastle United	Callum Wilson		£24,975,600	£20,000,000	£4,975,600
	Jamal Lewis		£23,634,000	£15,000,000	£8,634,000
Fulham	Anthony Knockaert		£11,598,600	£15,000,000	-£3,401,400
	Harrison Reed		£13,447,000	£6,000,000	£7,447,000
Manchester United	Alex Telles	Chris Smalling	£43,864,000	£15,400,000	£28,464,000
	Donny van de Beek		£43,545,500	£39,000,000	£4,545,500
			£23,359,000	£18,000,000	-£5,359,000

EPL Clubs - Average Value Business - Summer Transfer Window 2020					
Team	Arrivals	Departures	Intrinsic Value	Transfer Fee	Intrinsic Value Delta
Sheffield United	Aaron Ramsdale		£17,037,000	£18,500,000	-£1,463,000
	Rhian Brewster		£20,368,000	£23,500,000	-£3,132,000
	Jayden Bogle		£14,886,500	£7,000,000	£7,886,500
Leicester City	Timothy Castagne	Ben Chilwell	£24,114,500	£22,000,000	£2,114,500
	Wesley Fofana		£25,270,000	£36,500,000	-£11,230,000
			£31,968,500	£45,000,000	£13,031,500
Arsenal	Gabriel	Emiliano Martínez	£28,152,000	£27,000,000	£1,152,000
	Thomas Partey		£29,016,000	£45,000,000	-£15,984,000
	Pablo Marí		£44,664,000	£14,000,000	£30,664,000
West Ham United	Tomas Soucek	Grady Diangana Jordan Hugill	£28,917,000	£17,000,000	£11,917,000
	Vladimir Coufal		£22,620,000	£5,400,000	£17,220,000
			£26,289,000	£18,000,000	-£8,289,000
			£25,303,200	£5,000,000	-£20,303,200

EPL Clubs - Below Average Value Business - Summer Transfer Window 2020					
Team	Arrivals	Departures	Intrinsic Value	Transfer Fee	Intrinsic Value Delta
Liverpool	Diogo Jota		£30,064,500	£41,000,000	-£10,935,500
	Thiago		£39,907,500	£27,000,000	£12,907,500
	Kostas Tsimikas		£35,589,500	£12,000,000	£23,589,500
		Rhian Brewster	£36,404,000	£23,500,000	-£12,904,000
		Dejan Lovren	£24,612,000	£11,000,000	-£13,612,000
Chelsea	Kai Havertz		£47,340,000	£72,000,000	-£24,660,000
	Timo Werner		£57,451,500	£48,000,000	£9,451,500
	Ben Chilwell		£38,105,500	£45,000,000	-£6,894,500
	Hakim Ziyech		£50,432,000	£36,000,000	£14,432,000
	Edouard Mendy		£38,922,000	£22,000,000	£16,922,000
		Álvaro Morata	£32,072,000	£50,000,000	£17,928,000
	Mario Pasalic	£43,358,500	£13,500,000	-£29,858,500	
Manchester City	Nathan Aké		£46,206,000	£41,000,000	£5,206,000
	Ferran Torres		£30,020,000	£23,000,000	£7,020,000
	Rúben Dias		£31,110,000	£63,000,000	-£31,890,000
		Nicolás Otamendi	£16,810,000	£13,600,000	-£3,210,000
		Leroy Sané	£37,910,000	£54,000,000	£16,090,000
Southampton	Kyle Walker-Peters		£17,833,000	£12,000,000	£5,833,000
	Ibrahima Diallo		£16,542,000	£12,000,000	£4,542,000
	Mohammed Salisu		£22,500,000	£11,000,000	£11,500,000
		Pierre-Emile Höjbjerg	£24,658,500	£15,000,000	-£9,658,500
		Harrison Reed	£22,142,500	£6,000,000	-£16,142,500
Brighton		Anthony Knockaert	£16,348,800	£15,000,000	-£1,348,800
Leeds United	Rodrigo		£13,185,000	£28,000,000	-£14,815,000
	Diego Llorente		£15,744,000	£23,000,000	-£7,256,000
	Hélder Costa		£12,357,400	£16,000,000	-£3,642,600
	Raphinha		£14,586,000	£17,000,000	-£2,414,000
	Robin Koch		£15,002,500	£13,000,000	£2,002,500
	Illan Meslier		£15,561,000	£5,000,000	£10,561,000
Crystal Palace	Eberechi Eze	Alexander Sörloth	£27,882,000	£20,000,000	£7,882,000
			£35,462,000	£20,000,000	-£15,462,000
Wolverhampton Wanderers	Fábio Silva		£4,797,500	£35,000,000	-£30,202,500
	Nélson Semedo		£29,938,200	£29,000,000	£938,200
		Diogo Jota	£25,882,500	£41,000,000	£15,117,500
		Hélder Costa	£26,297,400	£16,000,000	-£10,297,400
		Matt Doherty	£25,685,400	£15,000,000	-£10,685,400
West Bromwich Albion	Grady Diangana		£10,719,000	£18,000,000	-£7,281,000
	Matheus Pereira		£7,454,500	£9,000,000	-£1,545,500

Once again, these *Intrinsic Values* place a monetary value on each player's contribution to their respective teams winning matches in the English Premier League, and these *Ratings* are dynamic and change with each game they play.

About Carteret Analytics

Carteret Analytics is part of the Carteret Group of companies, based in the City of London, New York and Geneva. It provides leading-edge quantitative analysis and commercial analytics to clients worldwide, with particular expertise in the sports sector. In football our work includes player rating and valuation, head coach assessment, team performance analysis, and applying proprietary analytics to transform commercial revenues.

Further information and contact details

If you have any questions, or would like to enquire about further services provided by the Carteret Group, then please feel free to contact one of the team members listed below.

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