INVESTOR SERVICES

6^{th} Annual bwf and ICMA Capital Markets Conference

J.P. Morgan Collateral Management

Karl Wyborn – *Head of EMEA Bank and Broker Dealer Sales, Investor Services*

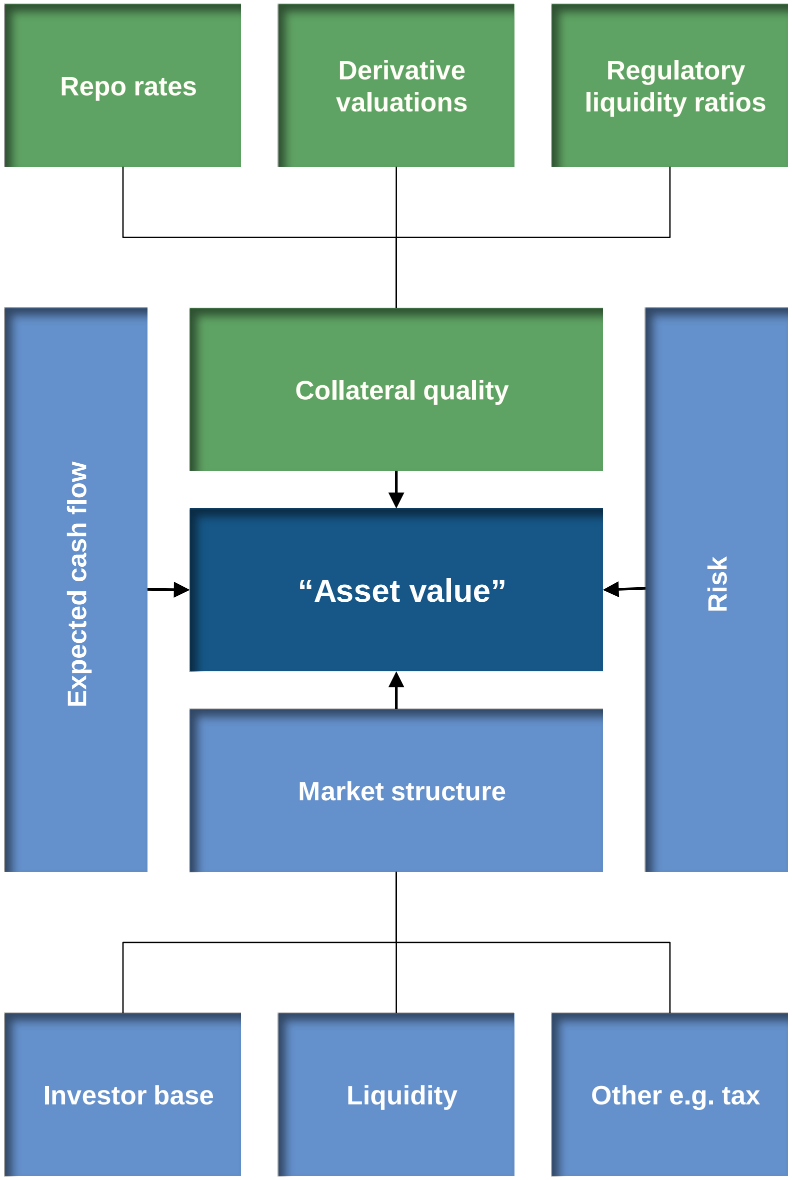
October 2013

J.P.Morgan

J.P. Morgan’s working assumption is that the usage (and costs) of collateral will increase significantly as a function of the impact of new regulations

	Comments	Demand
Capital ratios	▪ Increased requirements (e.g. by new capital buffers) might lead to decreased business volumes and therewith indirectly to lower collateral need	↓
Counterparty credit risk	▪ New credit valuation adjustment (CVA) charge might lead to higher collateral needs/usage ▪ Higher quantitative and qualitative requirements for collateralised transactions	↑
Liquidity ratios	▪ Increased demand for high grade collateral expected ▪ Sophisticated processes in collateral management required to optimise quality (and quantity) of unused collateral in pools	↑
Others basel measures e.g. leverage ratio	▪ Market risk and Operational Risk: No higher collateral needs expected ▪ Where the leverage ratio is exposure based re-setting (re-couponing) and compressing exposures will be key to optimal usage	→
DFA/EMIR	▪ Very significant increase in the use of collateral for cleared and non-cleared activity ▪ Stricter rules around collateral re-use will immobilise ever larger pools of the highest grade collateral	↑↑

The increase in cost/value however will not be homogenous as eligibility and liquidity will be key drivers



- Hördahl and King (2008) show that the tiering of sovereign GC collateral also reflects the ease with which the collateral can be sold which in turn impacts market liquidity
- Fostel and Geanakoplos (2008) decompose asset pricing into payoff value and collateral value. Flight to Collateral "showing pricing difference for assets that can be used as collateral"
- Gârleanu and Pedersen (2011) propose a "Margin CAPM: a security's required return is higher, the higher its margin requirement"

Deviation from the Law of One Price?

And collateral is (very) rapidly becoming an intraday discipline rather than end-of-day

Intraday credit	▪ Intraday credit exposures are presently not subject to capital requirements ▪ Basel 3 allows national regulators to include uncommitted intraday lines in the LCR regime (without a specified weighting factor) ▪ BCBS has also consulted on new operational guidelines to monitor intraday liquidity and the respective collateral movements (giving preferential treatment to cross-border collateral that can be transferred intraday)	▪ How sustainable is reliance on intraday credit provided by agents and ICSDs for settlement liquidity? ▪ How much is intraday credit 'worth'?
Large exposure	▪ Large exposure (intraday) have been implemented with exemptions for certain clearing and settlement activity ▪ Transactions against a CCP are usually exempted from a large exposure limit in line with a present zero risk weighting of related exposures ▪ "It is fair to say that the regulation of large exposures has become increasingly inconsistent" (Ingves 2012)[1]	▪ Interaction between settlement and collateral funding?

[1] Remarks by Mr Stefan Ingves, Governor of Sveriges Riksbank and Chairman of the Basel Committee on Banking Supervision, at the 7th High-Level Meeting jointly organised by the Association of Supervisors of Banks of the Americas, the Basel Committee on Banking Supervision and the Financial Stability Institute, Panama City, Panama, 15 November 2012

With still a few regulatory 'wild cards' left to be played...

FSB and CPSS-IOSCO Key principles for recovery and resolution	▪ In August CPSS-IOSCO and the Financial Stability Board (FSB) issued two complementary consultation papers (CP) on recovery and resolution proposing guidance designed to supplement the FSB's Key Attributes of Effective Resolution Regimes for Financial Institutions ▪ CPSS-IOSCO and FSB propose, among other tools, the haircutting of IM and VM of direct and indirect participants after the end of the default waterfall of an FMI ▪ This would mean that members would need to post additional IM and profits of in the money positions (VM) may be haircutted

FSB
Shadow banking policy recommendations
	▪ On 30 August, the FSB published a report entitled *Policy Framework for Addressing Shadow Banking Risks in Securities Lending and Repos* that sets out recommendations for addressing financial stability risks in this area, including enhanced transparency, regulation of securities financing, and improvements to market structure
	  ▪ The recommendations include limitations on rehypothecation of assets which could have a negative impact on liquidity due to further restrictions on the availability of eligible collateral
	  ▪ The recommendations do not constitute legislation but will have to be translated into local legislative proposals – such as the European Securities Law Legislation
	▪ Apart from recommendations, the report also includes consultative proposals on minimum standards for methodologies to calculate haircuts on non-centrally cleared securities financing transactions and a framework of numerical haircut floors. After the consultation period ends, the FSB is expected to draft its final recommendations in this area in Q2 2014
	  ▪ These consultative proposals could have negative impacts on liquidity and lead to increased costs of collateralising activity as well as potential changes in existing operating models
	▪ BCBS IOSCO's recently published final recommendations on margining of uncleared derivatives introduce requirements to segregate two-way margin, and limit the ability to rehypothecate assets

Collateral transformation	▪ Central counterparty services for securities lending ▪ Mandatory clearing of securities finance transactions?

Banks have long understood that the nature of collateral changes as activity migrates to a cleared environment

As more collateral moves to CCPs in the form of Initial Margin it's role changes from risk mitigant to principally a 'cost of doing business'. Like all costs this needs to be controlled. Optimisation is the key to achieving this.

Margin in a non-cleared environment

Counterparty Credit Exposure

Collateral Risk

Cost

In a bi-lateral environment collateral management is principally an exchange of risk:

Counterparty Credit Risk

- Collateral risks:
  - Operational
  - Settlement
  - Legal
  - Concentration

Margin in a cleared environment

Non-Cleared

Counterparty Credit Exposure

Collateral Risk

Cost

Cleared

CCP/Clearing Broker Exposure

Collateral Risk

Cost

In a cleared environment the provision of collateral is designed to protect the CCP.

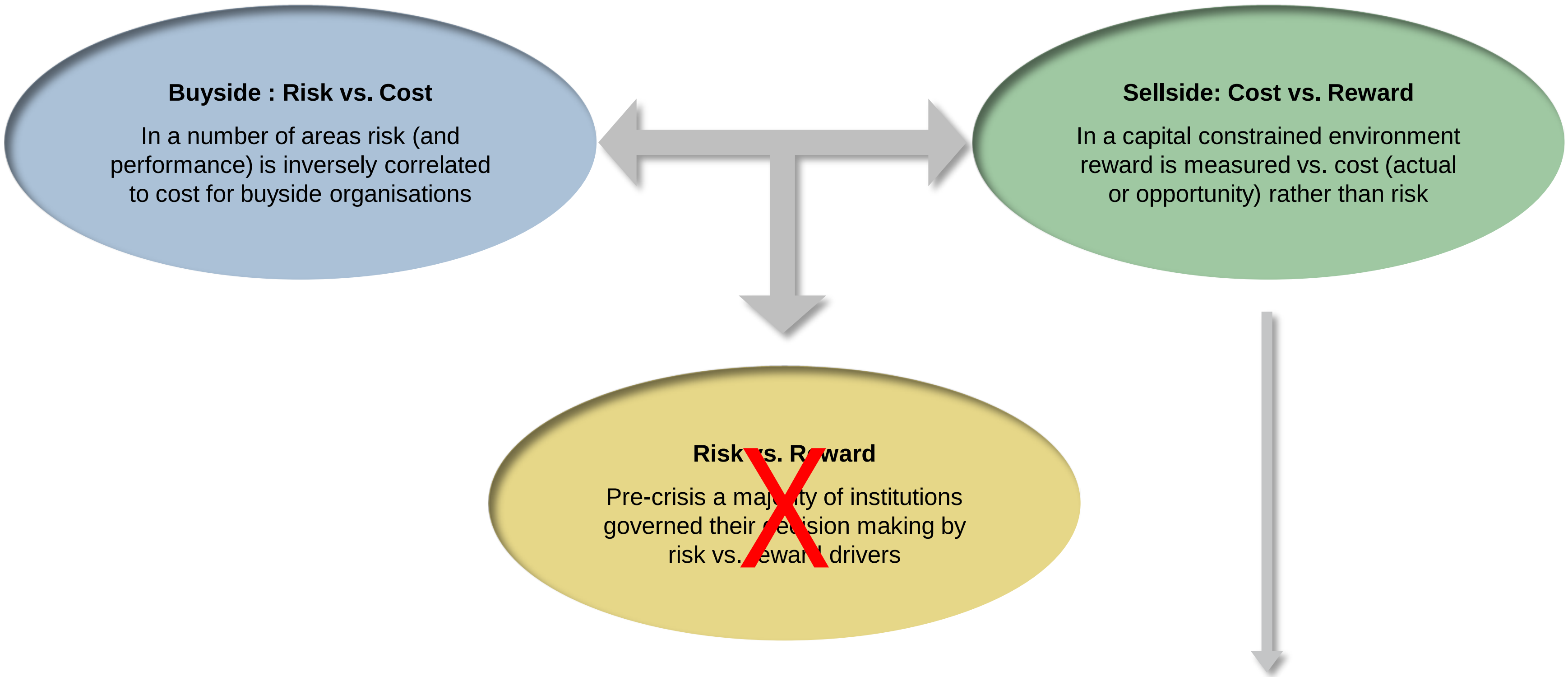
~~Counterparty Credit Exposure~~

- Collateral risks greatly reduced:
  - Operational
  - Settlement
  - Legal
  - Concentration

In a cleared margin programme **cost** (incl. liquidity) becomes the most significant driver

J.P.Morgan

A new paradigm where collateral is concerned…

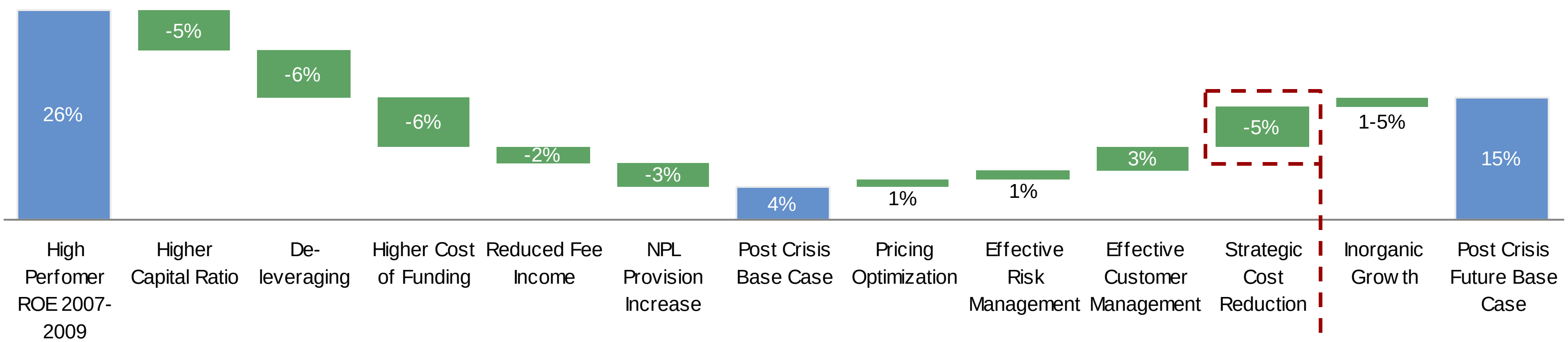


- The impact of new regulation significantly alters business drivers across the finance industry. For the sellside:
  - In a capital constrained environment reward is integrally linked to RWA availability and usage
  - New Leverage ratio exacerbates this paradigm where a bank's ability to execute business becomes more constrained still
- In terms of collateral this has a number of downstream impacts:
  - Optimal usage reflects 'best' to deliver...not necessarily 'cheapest' to deliver
  - Consolidating all available resource (Enterprise Wide Collateral Management) becomes a meaningful aspiration (requirement?)
  - Collateral velocity/efficiency grows in importance

This is occurring in an environment where banks attempt to reinflate ROE

ROE has been very significantly impacted as a result of recently implemented regulations and strategic business decisions…

Rebuilding investment bank profitability



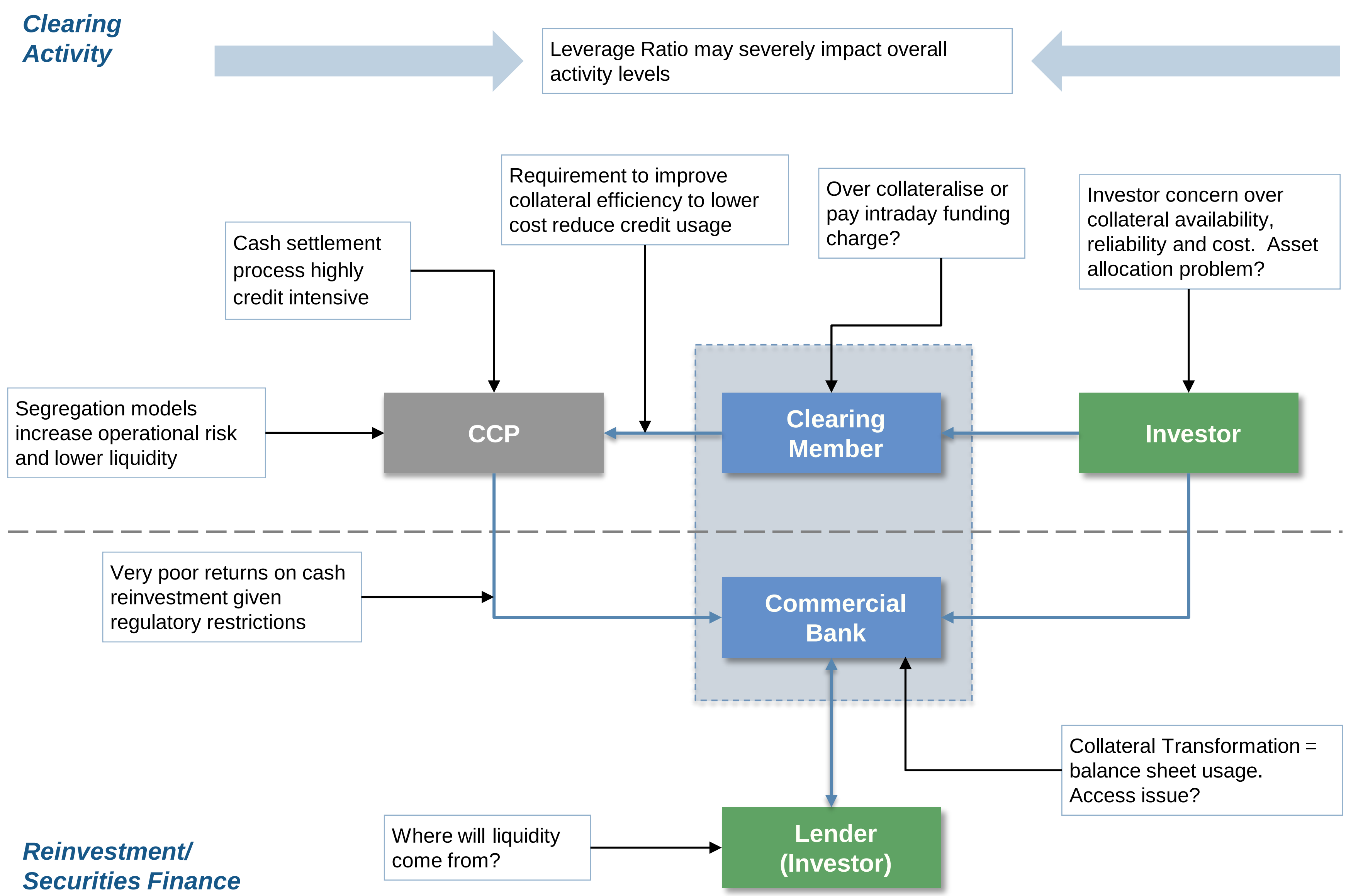
Current ROEs will continue to be impacted as regulations are implemented…

	Remaining ROE impact	Level of uncertainty	New developments	Remaining risks and uncertainties
Solvency and liquidity	<1%	Low	■ Progress on RWAs ■ Moderation to liquidity and capital rules	■ CVA VaR
Structural reform	2 – 3%	Medium	■ New Proposals, US FBO, Liikanen ■ Balkanisation	■ Finalisation of new proposals ■ Subsidiarisation reforms
OTC reform	~1%	Low	■ New margining rule ■ Phased implementation	■ Behavioural impacts ■ Extra-territoriality
Conduct, EU FTT and other	<0.5%	High	■ Establishment of conduct bodies ■ FTT	■ Scope of reform ■ FTT implementation

- **Strategic cost reduction** may account for ~5% of ROE throughout the structural reform cycle
- Collateral Management forms part of that strategic cost review

J.P.Morgan

All of the above will help create multiple collateral 'pinch points' throughout the system...

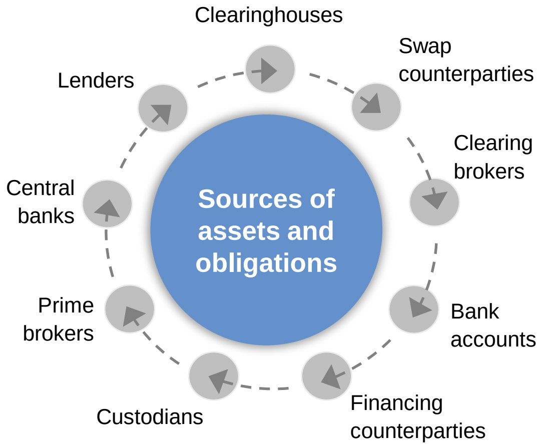


Now is the time: New regulation has made efficient, enterprise wide collateral management more important than ever

An enterprise wide approach to Collateral Management is now more important than ever before.

More complex

- Market infrastructure changes (Dodd-Frank, EMIR, AIFMD) and financing, capital and liquidity changes (Basel III / Solvency II) are expanding the number and complexity of relationships you manage



  - More collateral movements
  - Demand for segregation
  - Increase in collateral values
  - Liquidity and capital charges
  - Proprietary and client collateral
  - Compressed time frames

Increased collateral requirements

- Financing:
  - New regulations implemented require market participants to prove ability to finance assets to achieve Tier 1 status (e.g. LCR)
  - Anticipate higher volumes of financing activity to meet “collateral squeeze”
  - The Basle III committee is currently reviewing if and how intraday liquidity risk should be addressed
- Swaps:
  - Introduction of initial margin
  - Demand for high grade/highly liquid collateral
  - RWA spikes due to inefficient collateral movements

More prescriptive collateral eligibility

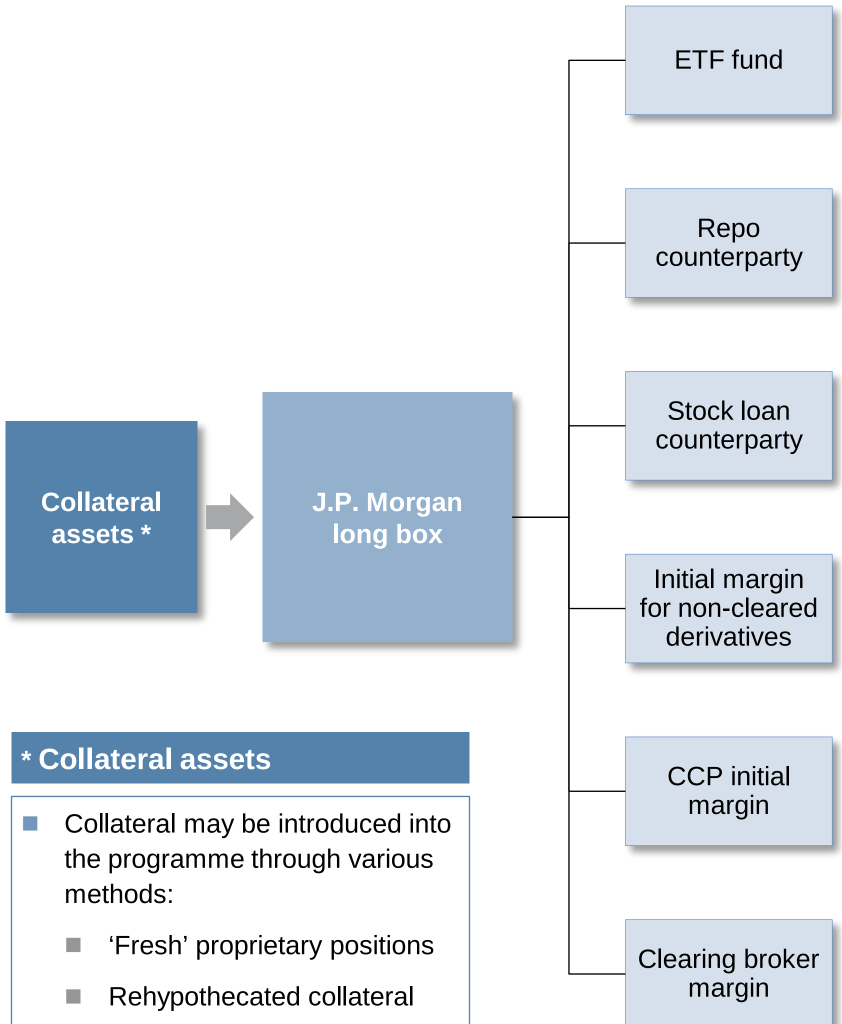
- Focus on reducing systemic risk and ensuring that collateral receivers are prepared for default events:
- Clearinghouses narrow eligibility requirements
- Shadow Banking: Possible introduction of mandatory haircut methodologies plus limits to rehypothecation
- UCITS: Rehypothecation currently not permitted with further provisions imposed on collateral that is moved via Title Transfer
- AIFMD: Possible segregation requirements

Industry estimates regarding the growth in collateral usage as a function of new regulations range from $500 billion to $6 trillion[1]

[1] Finadium, Morgan Stanley, Bloomberg, TABB Group, Bank of England, and the Bank of International Settlements

Promoting optimal, enterprise wide efficiency: the expanded use of tri-party to meet multiple obligations across multiple instruments and asset classes

Through J.P. Morgan's tri-party programme our clients are able to meet a multitude of collateral obligations across instruments, obligations and asset classes.



*** Collateral assets**

- Collateral may be introduced into the programme through various methods:
  - 'Fresh' proprietary positions
  - Rehypothecated collateral
  - iCSD inventory

- **Historically tri-party has been used primarily to collateralise principally stock loan and repo activity. This is no longer the case:**
  - **Initial margin for non-cleared positions** – Under EMIR, from 2015, many users of OTC derivatives will be required to pledge Independent Amounts to their counterparties for their non-cleared transactions
  - **CCP initial margin** – CCPs are increasingly turning to J.P. Morgan tri-party as a means of calling Initial Margin from their clearing member clients
  - **Clearing broker margin** – Where our client uses a clearing broker they may meet their IM requirement in tri-party
  - **Structured transactions** – Increasingly tri-party solutions are being employed to improve operational efficiency and hence reduce spikes in RWA under Basle III
  - **Stock loan/repo** – It is anticipated that stock loan and repo transactions will be increasingly used to meet 'collateral transformation' requirements of both clearing brokers and buyside clients

The optimal use of collateral can significantly enhance return and lower risk

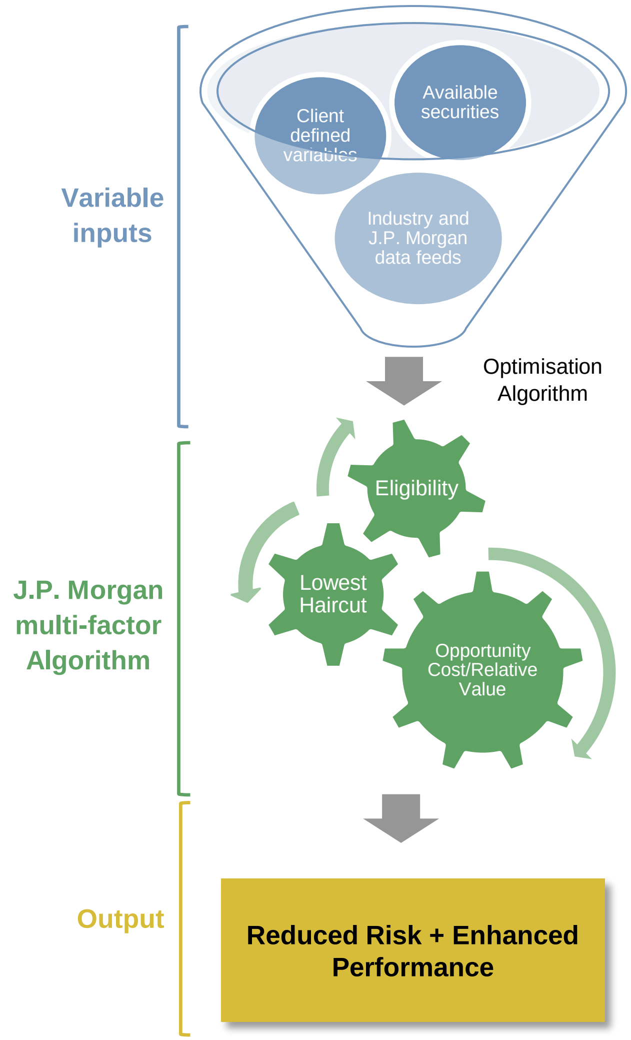
Whilst effective risk management is essential this can be achieved within a framework of collateral optimisation. J.P. Morgan's multi-factor approach to collateral allocation is our next generation optimisation tool.

Multi-factor optimisation

- The optimal use of collateral is a means of both further reducing risk and enhancing overall performance
- The J.P. Morgan multi-factor optimisation model will be based on:
  - Market driven risk parameters
  - Market defined opportunity costs
  - Haircuts
- Delivers additional value by suggesting borrowing/investing opportunities

J.P. Morgan approach/strategy

- J.P. Morgan will combine a series of user defined variables with market data feeds, eligibility criteria and available inventory to define optimal collateral allocation
- The J.P. Morgan algorithm may consider:
  - **LCR tiers:** Takes into account LCR 'value' of a given asset
  - **Movement fees:** Avoids where possible multiple movements to meet a single margin
  - **Intrinsic value:** Cost of not lending a security with significant intrinsic value in sec lending markets
  - **Financing value:** Cost of not lending a security with liquidity in repo markets
  - **Haircut (RWA):** The risk and (RWA) cost of over collateralisation i.e. relative haircut consideration
  - **Cash:** The relative cost of using cash to collateralise using market interest and FX rates



J.P.Morgan