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Note on the interactions between payment systems and monetary policy

- Francesco PAPADIA, Bruegel -

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Note on the interactions between payment systems and monetary policy MONETARY DIALOGUE February 2018

DIRECTORATE GENERAL FOR INTERNAL POLICIES

POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICY

Note on the interactions between payment systems and monetary policy

IN-DEPTH ANALYSIS

Abstract

This paper analyses the interactions between, on one hand, monetary policy and financial stability responsibilities of the ECB and, on the other hand, Post-Trading-Financial Market Infrastructures. Its basic conclusion is that Payment Systems are critical for monetary policy while Central Counter Parties (CCPs) are critical for financial stability. However, in stressed conditions CCPs can be the source of risks also for monetary policy.

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DISCLAIMER

CONTENTS

EXECUTIVE SUMMARY

- Five types of Financial Market Infrastructures (FMIs) participate to Post-Trading: PS (Payment Systems), CSDs (Central Securities Depositories), SSSs (Securities Settlement Systems), CCPs (Central Counter Parties), and TRs (Trade Repositories).
- Post-Trading includes three sub-functions: Payment System, Clearing and Settlement.
- The ECB has a dominant price stability objective but also financial stability responsibilities, even if they are less forcefully formulated and are shared with other institutions.
- The Payment System is critical for monetary policy and the issuing central bank, specifically the ECB, must maintain full control over it. Such full control is only possible if the Payment System is located in the euro-area.
- Clearing and Settlement are relevant for monetary policy, but do not have the same degree of criticality as the Payment System.
- CCPs (Central Counter Parties) have no direct interaction with monetary policy in normal conditions, but can become relevant for monetary policy in stressed conditions. In these conditions, risks can thus arise for the conduct of ECB monetary policy from the fact that some key CCPs are located outside of the euro-area.
- Clearing and settlement systems, particularly CCPs, are critical for financial stability.
- Locating these systems in the jurisdiction of the relevant central bank is the safest and simplest option for assuring their continued contribution to financial stability, in both normal and crisis conditions.
- Particularly tight, and not easy to design and agree, arrangements with the institution responsible for financial stability and monetary policy in the jurisdiction where the CCP is incorporated, specifically the Bank of England for the London Clearing House (LCH), as well as direct intervention rights for the issuing central bank (i.e. the ECB), can approximate the conditions that would prevail if the CCP was located in the jurisdiction of the issuing central bank.

1. INTRODUCTION

The Services of the European Parliament have asked for a document on the two following points:

- **Discuss the interactions between payment systems and monetary policy for the euro area**
- **Does the current framework for euro-denominated payment systems - with the large role played by some key CCPs located in the City - bear risks for the conduct of ECB monetary policy?**

The following note addresses these two points exclusively from an economic point of view, without any consideration on the legal controversy about the location policy of the ECB, which was annulled by the General Court of the European Union in March 2015, or about the situation after Brexit of LCH (London Clearing House), the CCP (Central Counter Party) situated in London. This paper does also not address the issue of the ECB's *"Recommendation to amend Article 22 of the Statute, to extend its regulatory power to clearing systems for financial Instruments"* nor the Commission proposal to *"amend EMIR to ensure a greater involvement of CBIs."* [1]

After this first introductory section, the second section defines a number of relevant concepts falling within the general category of Post-Trading; a third section recalls the monetary policy and financial stability responsibilities of the ECB; the fourth section examines the interactions between monetary policy and the different components of Post-Trading; the fifth section examines the interactions between central bank responsibilities for financial stability and CCPs; the sixth section concludes and references follow.

[1] Council of the European Union, General Secretariat, 2018. CBI stands for Central Bank of Issuance.

2. DEFINITION OF RELEVANT CONCEPTS

To properly address the issue at hand, a clear definition of the relevant concepts is needed.

The overall process (so called Post-Trading) that follows a financial transaction (or more specifically a financial trade) and ends with settlement can be defined in two different, but broadly consistent, ways:

1. An institutional definition,
2. A functional definition.

The institutional definition starts from the concept of Financial Market Infrastructure (FMI):

"…an FMI is defined as a multilateral system among participating institutions, including the operator of the system, used for the purposes of clearing, settling, or recording payments, securities, derivatives, or other financial transactions. … the definition of an FMI includes five key types of FMIs: payment systems, CSDs, SSSs, CCPs, and TRs." (Bank for International Settlement, OICV IOSCO (2012), pages 174-179)

The five kinds of FMIs are defined as follows (Glossary of Bank for International Settlement, OICV IOSCO (2012), pages 8-9):

1. ***PS - Payment system*** *- A set of instruments, procedures, and rules for the transfer of funds between or among participants; the system includes the participants and the entity operating the arrangement*.
2. ***CSD - Central Securities Depository*** *- An entity that provides securities accounts, central safekeeping services, and asset services, which may include the administration of corporate actions and redemptions, and plays an important role in helping to ensure the integrity of securities issues (that is, ensure that securities are not accidentally or fraudulently created or destroyed or their details changed).*
3. ***SSS - Securities Settlement Systems*** *- An entity that enables securities to be transferred and settled by book entry according to a set of predetermined multilateral rules. Such systems allow transfers of securities either free of payment or against payment.*
4. ***CCP – Central Counterparties*** *- An entity that interposes itself between counterparties to contracts traded in one or more financial markets, becoming the buyer to every seller and the seller to every buyer and thereby ensuring the performance of open contracts.*
5. ***TR - Trade Repository*** *– An entity that maintains a centralised electronic record (database) of transaction data.*

The functional definition is articulated as follows (Kokkola (2010), pages 25-26):

2.1. Payment system

"This term has two meanings.

1. *In some cases, it refers to the set of instruments, banking procedures and interbank funds transfer systems which facilitate the circulation of money in a country or currency area.*
2. *In most cases, it is used as a synonym for "funds transfer system".*

Fund transfer system. A formal arrangement based on a private contract or legislation, with multiple membership, common rules and standardised arrangements, for the transmission,

clearing, netting and/or settlement of monetary obligations arising between its members. See also interbank funds transfer system, payment system."

2.2. Clearing

Clearing includes *"the process of transmitting, reconciling and, in some cases, confirming securities transfer orders prior to settlement, potentially including the netting of orders and the establishment of final positions for settlement…. In some markets, there may be a central counterparty (CCP), a central provider of clearing services which interposes itself between the two parties and provides multilateral netting and centralised risk management.*

CCPs were originally set up to serve derivatives markets, particularly for the clearing of futures and options contracts. However, in some markets the list of financial products covered by CCPs has been extended to include cash securities."

2.3. Settlement

"Settlement. The completion of a transaction or of processing with the aim of discharging participants' obligations through the transfer of funds and/or securities. …

Settlement system. A system used to facilitate the settlement of transfers of funds, assets or financial instruments.

Settlement of a trade in securities typically involves two legs: the transfer of the securities from the seller to the buyer, and the transfer of funds from the buyer to the seller."

There is broad but not precise matching between the institutional and the functional definitions. The following remarks are important in comparing the two definitions:

- For the purpose of this note, the relevant definition of payment system is the one corresponding to *"funds transfer system".*
- Clearing can be provided by PS, CCP and SSS.
- A Settlement system is characterized by a pre-defined set of multilateral rules.
- In many countries CSDs also operate an SSS.

One important fact should be retained from this section: the payment system is only one component of Post-Trading and correspondingly only one institution among FMIs.

This document will look analytically at the interactions between monetary policy and all the components of Post-Trading, not only the Payment System. It will, in addition, look at the interaction between the financial stability responsibility of the ECB and the different components of Post-Trading.

3. MONETARY POLICY AND FINANCIAL STABILITY RESPONSIBILITIES OF CENTRAL BANKS[2]

Before the Great Recession, that started in August 2007 and entered its most acute phase with the failure of Lehman Brothers in September of 2008, monetary policy followed the approach that Wicksell had developed in the 1920s, in which the interest rate rather than any monetary quantity plays the critical role. Basically, monetary policy coincided with interest rate policy.

The Great Recession required significant adaptations to that approach as it belied three critical, if untold, assumptions of monetary control: first, the ability of the central bank to closely control a short-term market rate; second, a fairly stable relationship between that short-term rate and longer/riskier interest rates that are more important for the real economy; third, the possibility to reduce, in all cases, interest rates as much as needed. The ECB, but also the Federal Reserve of the United States, reacted to these difficulties developing one additional tool for their monetary policy arsenal: balance sheet management. This development built on the previous experience of the Bank of Japan (Kuroda 2014), which had embarked in the Zero Interest Rate Policy in February 1999 and then in Quantitative Easing in March 2001. The large balance sheet increase allowed the ECB and the Fed to bring on their balance sheet part of the intermediation that private markets were no longer capable of carrying out, to counter the disorderly increases in interest rate spreads and to ease monetary policy even when the short-term interest rate had reached its lower bound. Overall, balance sheet management, including huge purchases of securities, complemented the blunted interest rate tool to achieve the central bank objective of price stability.

The Great Recession, however, brought about an even greater challenge for central banks, as the implicit assumption that the pursuit of price stability would always coincide with that of financial stability was not verified during the Great Recession. The renewed emphasis on financial stability as an explicit and separate key objective to be pursued by a central bank has emerged, possibly vying with price stability for the first position in the rank of objectives and causing potential dilemmas for the central bank, which would have to arbitrage between two different objectives in its use of monetary policy tools.

This challenge was made more demanding because of two factors. First, the financial stability mandate of the ECB was softer than the price stability one. Second, the definition of financial stability is much less precise than that of price stability[3]. The two issues are illustrated in turn.

In the Maastricht Treaty, and in the statute of the ECB, financial stability is only briefly mentioned, and only as it relates to banking supervision. The most explicit formulation is found in Article 127.5 of the Treaty on the Functioning of the European Union (which is repeated in Article 3.3 of the Statute of the ECB):

The ESCB shall contribute to the smooth conduct of policies pursued by the competent authorities relating to the prudential supervision of credit institutions and the stability of the financial system.

Article 25.1 of the Statute has a further reference to financial stability:

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[2] This section draws on: F. Papadia with T. Välimäki, *Central Banking in Turbulent Times.* Forthcoming with Oxford University Press.

[3] Issing (2003) identified a trade-off between the generality, and acceptability, of *"definitions, which are based on a system approach"* and the operationality of definitions *" which are related to the volatility of directly observable financial variables…".*

The ECB may offer advice and be consulted by the Council, the Commission and the competent authorities of the Member States on the scope and implementation of Union legislation relating to the prudential supervision of credit institutions and to the stability of the financial system.

While Article 127.6 of the Treaty refers specifically to supervision:

The Council, acting by means of regulations in accordance with a special legislative procedure, may unanimously, and after consulting European Parliament and the European Central Bank, confer specific tasks upon the ECB concerning policies relating to the prudential supervision of credit institutions and other financial institutions with the exception of insurance undertakings.

A common weakness of all these formulations is their vague nature: *"contribute to the smooth conduct", "may offer advice", "may …confer specific tasks".* Such vague formulations did not provide a strong basis for the ECB to act on financial stability issues. Compare this with the strong formulation of the price stability objective: *"The primary objective of the European System of Central Banks shall be to maintain price stability."* Indeed, an extensive interpretation of article of 127 (6) was required for the decision to grant supervisory powers to the ECB in 2012.

The second factor mentioned above, namely the less precise definition of financial stability, can be illustrated considering the formulation of this objective established by the ECB[4]:

Financial stability can be defined as a condition in which the financial system – comprising of financial intermediaries, markets and market infrastructures – is capable of withstanding shocks and the unravelling of financial imbalances, thereby mitigating the likelihood of disruptions in the financial intermediation process which are severe enough to significantly impair the allocation of savings to profitable investment opportunities. Understood this way, the safeguarding of financial stability requires identifying the main sources of risk and vulnerability such as inefficiencies in the allocation of financial resources from savers to investors and the mis-pricing or mismanagement of financial risks. This identification of risks and vulnerabilities is necessary because the monitoring of financial stability must be forward looking: inefficiencies in the allocation of capital or shortcomings in the pricing and management of risk can, if they lay the foundations for vulnerabilities, compromise future financial system stability and therefore economic stability.

1. *The financial system should be able to efficiently and smoothly transfer resources from savers to investors.*
2. *Financial risks should be assessed and priced reasonably accurately and should also be relatively well managed.*
3. *The financial system should be in such a condition that it can comfortably absorb financial and real economic surprises and shocks.*

If anyone or a combination of these characteristics is not being maintained, then it is likely that the financial system is moving in a direction of becoming less stable, and at some point might exhibit instability.

Thus 238 words were needed to define financial stability. Compare it with the neat 54 words needed to define price stability:

The ECB's Governing Council has defined price stability as a year-on-year increase in the Harmonised Index of Consumer Prices (HICP) for the euro-area of below 2 percent. The

[4] ECB Financial Stability Review, December 2007, p. 9. This definition is of the "systemic" nature, according to the classification proposed by Issing (2003). See footnote 3.

Governing Council has clarified that, in the pursuit of price stability, it aims to maintain inflation rates below, but close to, 2 percent over the medium term.

On the basis of the number of words needed to define the two concepts, we may conclude that that of financial stability is about 4 times more complicated than that of price stability. Moreover, the pursuit of a complicated objective is necessarily more difficult than the pursuit of a simple objective, even if the two were put, which they were not, on the same level in the hierarchy of objectives. Add the "fuzziness" in measuring financial stability, analysed by Borio and Drehmann (2009), and the complexity of the pursuit of financial stability is evident.

Lastly, it should be mentioned that other institutions share with the central bank the responsibility of maintaining financial stability. This raises complex issues of coordination between different actors and further blurs their respective responsibilities.

4. INTERACTIONS BETWEEN MONETARY POLICY AND THE COMPONENTS OF POST-TRADING

Interest rate control by the central bank critically requires a smoothly functioning **payment system**. If funds do not flow smoothly between market participants, interest rate formation is affected. As market participants would not be sure that they would be paid on time, they would hoard liquidity to assure the ability to discharge their obligations, lest they would risk failure because of a lack of liquidity. The detrimental effect of liquidity hoarding on the formation of interest rates was well visible during the initial phases of the Great Recession, when banks were no longer willing to lend liquidity to other banks, interest rates became disorderly and the payment system got close to a collapse, only averted by forceful central bank action, which lent freely liquidity to banks unable to fund themselves on the money market. The payment system is the place where liquidity circulates among financial institutions and monetary policy basically consists of the control interest rates, for which the control of liquidity is critical. When the payment system is dysfunctional monetary policy is impaired.

In the initial phases of the Great Recession, the reasons for the hoarding of liquidity, the impaired payment system and thus the disorderly behaviour of interest rates were caused by the enormous increase of liquidity and credit risk, but a dis-functioning payment system could cause problems of the same kind.

The criticality of the payment system for monetary policy is easily visualized considering the payment system as the place where individual actions interact leading, in a positive configuration, to smooth payments, while, in a negative configuration, the payment system acts as a crisis propagator.

The fundamental interaction between the payment system and monetary policy is further confirmed by the fact that, in the euro-area, the European Central Bank, and indeed the entire Eurosystem, assures a smooth and efficient payment system through their creation and management of Target 2, the large-value payment system that is the backbone for the settlement of payments in euro[5]. Analogously, the sustained efforts of leading central banks to press the need of dealing with settlement risk by means of the creation of CLS (Continuously Linked System) for exchange transactions witnesses the critical importance of the payment system for monetary policy.[6]

Smoothly functioning **settlement**, and therefore effective **SSSs and CSDs**, are also relevant for interest rates control, since monetary policy operations are collateralized, i.e. the lending of liquidity by the central bank is guaranteed by the posting of collateral, which has to be settled. In addition money market operations between private participants, including repurchase operations, which are necessary to the proper functioning of the money market, require effective settlement systems. Furthermore, if securities transactions are not smoothly settled, they can impact payment systems, in particular in the case of Delivery Versus Payment (DVP) modality, when the cash operation has to be conducted contemporaneously with the security leg of the operation. The relevance of settlement for the central bank is also confirmed by the ECB's extensive work to establish the so called Target2 Securities (T2S),

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[5] This conclusion is also drawn very explicitly by a document of the Bank for International Settlements (BIS 2012): *"The euro area, like any currency area, requires an infrastructure which enables the safe and efficient flow of payments and financial instruments at low cost throughout the whole zone. … TARGET2 is an essential vehicle for implementing the ECB's monetary policy and for the functioning of the euro money market …."*

[6] CLS is a payment system for international transactions. Specifically: *"The Continuous Linked Settlement system primarily provides settlement services for payment instructions related to foreign exchange transactions, covering 17 currencies around the globe..."* (Kokkola (2010), page 289).

"which envisages the establishment of a platform for the settlement in central bank money of securities transactions in Europe." (Kokkola (2010), page 303)

The importance of settlement increases when, like now, the central bank needs to complement the interest rate tool with balance sheet management, particularly with Quantitative Easing. However, even considering Quantitative Easing operations, settlement systems do not have the same degree of criticality than payment system for monetary policy: the unimpaired flow of liquidity is more important for monetary policy than the smooth settlement of securities.

Also **clearing** is relevant for central bank operations, since clearing is a necessary step to reach settlement. However, the kind of clearing required for central bank operations is not conducted through the intermediation of a CCP. Thus, in non-crisis conditions, there is no direct interaction between CCPs and monetary policy.

However, interactions between monetary policy and clearing, and in particular CCPs, can become important in stressed conditions. In particular:

- Disturbances affecting a CCP can cause liquidity stress and impart a negative impact on payment systems,
- This negative impact can manifest itself, in particular, if a problem in a CCP spills over into the market for repurchase agreements, which is a fundamental component of the money market,
- Changes in collateral haircuts asked from CCPs can impact the spreads between bond yields and the short-term interest rate and thus affect the transmission of monetary policy,
- In particularly severe crises, the central bank may have to provide emergency liquidity to a CCP, and this action can affect monetary policy.

Overall, it can be concluded that the Payment System is critical for monetary policy, Settlement and Clearing Systems are relevant for it, while CCPs have no direct interaction with monetary policy in non-crisis conditions but the link can arise in a crisis. [7]

[7] One can read a more general conclusion in the words of Trichet in the introduction to the book edited by Kokkola: *"The payment system – which includes financial market infrastructure for payments, securities and derivatives – is a core component of the financial system, alongside markets and institutions. Systems (or related services) could increasingly be located outside the jurisdiction of the central bank of issue. Sometimes this is unavoidable …. In other cases, it may be more difficult to accommodate a situation where the system handling a currency lies offshore. In such a scenario, the central bank's ability to fulfil its role in the fields of oversight, monetary policy and crisis management may be impaired."*

5. INTERACTIONS BETWEEN CENTRAL BANK RESPONSIBILITIES FOR FINANCIAL STABILITY AND CCPS

In the previous section it was seen that CCPs interact with monetary policy only in crisis conditions. This conclusion already hints to the adjacent conclusion that CCPs are important for financial stability. Indeed it is argued in this section that they are even critical for financial stability.

A first evidence for this conclusion is to be found in the deliberations of the Financial Stability Board (FSB), which is the body advising the Group of 20 countries on financial stability issues. Indeed the FSB (established in 2009) is charged with coordinating the design and implementation of the G20's post-crisis regulation at global level, targeted at financial stability.

One of the most important conclusions of the FSB was that standardised derivative contracts should be cleared through CCPs.

By interposing themselves between counterparties to a contract, becoming the buyer to every seller and the seller to every buyer, CCPs increase market transparency and reduce the risks inherent, in particular, in derivatives markets.

Every day CCPs clear thousands of financial transactions in a range of financial instruments including equities, bonds, commodities, derivatives and repurchase agreements.

EMIR (European Market Infrastructure Regulation), which came into effect on March 15, 2013, has implemented the commitment entered by the EU in the FSB that standardized Over-The-Counter (OTC) derivatives should be cleared and settled through clearing-houses.

The aims of Emir are to:

- increase transparency in the OTC derivatives markets;
- mitigate credit risk; and
- reduce operational risk.

The Dodd-Frank legislation mandated that also in the United States standardized derivatives should be exchanged through CCPs.

Overall, the emphasis of the FSB, EMIR and Frank-Dodd on clearing, in particular on CCPs, shows the critical importance of this function and of these institutions for financial stability.

Another piece of evidence that clearing and settlement systems are critical for financial stability can be found in various ECB documents. Indeed there is quite more emphasis in these documents on the link between settlement and clearing systems, on one hand, and financial stability, on the other hand, than on the link with monetary policy. For instance Coeuré mentions financial stability 9 times, when specifically addressing CCP issues as Chair of the Committee on Payments and Market Infrastructures at the BIS, but does not mention at all monetary policy or central banks in his extensive speech. [8] A different impression is drawn, however, by looking at Coeuré (2017b), in which there are about as many references to monetary policy and financial stability. One can further note that the arguments invoked

[8] B. Coeure (2017a). In the same vein, the interaction between monetary policy is not evident in speeches of Fed representatives addressing CCP issues: no mention, for example, is found in Powell (2013), of either monetary policy or central banks, while financial stability is mentioned 3 times; the same frequencies for Kroszner (2006) are 0 and 4.

to prove a link between the clearing and settlement systems and financial stability are particularly strong. Kokkola (2010), for instance, puts the issue as follows:

"Securities settlement systems and central counterparties (CCPs) are key components of the financial system. A financial, legal or operational problem in any of the institutions that perform critical functions in the clearing and settlement process can be a source of systemic disturbance for the financial system as a whole. This is particularly true for CCPs, which are, by nature, a focal point for credit and liquidity risk." (p. 279)

Problems in clearing and settlement would mean that market participants would not be sure about a basic issue like the holding of their securities and their compliance with the obligation to transfer securities to counterparties. The consequences of this uncertainty for financial stability could become very damaging indeed. This conclusion would particularly apply to CCPs, which concentrate, but also reduce, risk by interposing themselves between contracting counterparties.

In crisis times, the incorporation of a CCP in the euro-area would allow the ECB, as the issuing central bank, to provide central bank liquidity to it. In addition, it would also allow the CCP to hold its cash reserves in the safest possible way, i.e. as deposits with the central bank. Overall, it would facilitate the intervention of the central bank to contain financial instability consequences deriving from problems in a CCP. In non-crisis times, the incorporation of a CCP in the jurisdiction of the issuing central bank would intrinsically assure that the needed information is sent to it as well as establish the effective conditions for its oversight. One can, however, envisage particularly tight agreements between the issuing central bank (specifically the ECB) and the institution responsible for financial stability and monetary policy in the jurisdiction in which a CCP is located (the Bank of England in the case of the LCH) as well as direct intervention powers for the ECB that would approximate the situation prevailing if the CCP was located in the jurisdiction of the issuing central bank. The design, as well as the political acceptability, of these agreements would, however, be anything but easy.

The case of LCH (London Clearing House) is particularly important: according to ECB estimates, reported in Coeure (2017b): "*UK CCPs clear approximately 90% of the euro-denominated interest rate swaps of euro area banks, and 40% of their euro-denominated credit default swaps."* Furthermore it is noted (Mersch, 2017) that:*" The importance of UK CCPs is not limited to derivatives, as they are involved in approximately 50% of the cleared euro-denominated repo business of euro area banks."*

6. CONCLUSIONS

While CCPs have no direct interaction with monetary policy in normal times, risks can arise for the ECB's monetary policy in stressed conditions if the CCP is not located in the euro-area. In addition, the functioning of CCPs is critical for financial stability. Particularly tight agreements can approximate, however, the conditions that would prevail if indeed the CCP was located in the euro-area.

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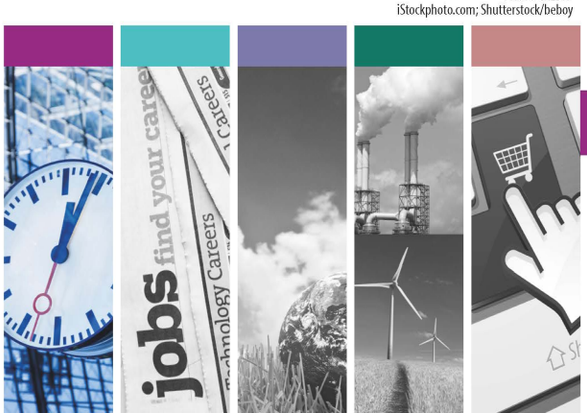

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